

MANAGING INVOLVEMENT FOR SAFE CNG MARKETING THROUGH EMPLOYEES DRIVEN SYSTEM: AN EMPIRICAL STUDY ACROSS GUJARAT

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Abstract

This research study was conducted in Gujarat, where more numbers of NGVs were plying with an objective to explore the CFS employee's involvement for safe CNG marketing, and to gauge the benefits of safety training. The structured non-disguised questionnaire, designed as Research Instrument, was served by verbatim translating into vernacular local Gujarati language to help the respondents to better understand and to respond to it correctly. Six demographic factors were determined to measure the selected constructs based upon safety criterions. The primary data was drawn randomly by adopting convenience sampling from 123 Numbers of CFS employees, representing 240 Numbers of operating CFS of 10 different CGD companies working across Gujarat at the time of sampling. The major findings reveal that BBS Training was found to be very useful tool for increasing actively caring behaviours of employees. It may be used for spreading knowledge, skills and attitudes, required for improving safety, reducing at-risk behaviours of others to avoid accidents and build around a strong safety culture. This study has created new avenues for HR Managers to show their capabilities in training the available human resources by managing involvement for safe CNG marketing through employees driven system across the globe.

Key Words

Behaviour Based Safety (BBS) Training, Clean Fuel Stations (CFS), City Gas Distribution (CGD) Companies, Compressed Natural Gas (CNG), and Natural Gas Vehicles (NGVs).

Introduction

This study deals with an important aspect of Clean Fuels Business, hither to neglected for long; this **Green Concept** is getting more popular now as it does not increase the carbon concentration in the atmosphere and improves **Carbon Credit**. Clean Fuel is basically Compressed Natural Gas (CNG), which is a fossil fuel and mainly composed of Methane. CNG is more environmentally cleaner as its combustion produces less **Greenhouse Gases** and is much safer alternative to other fuels. CNG being Compressed at high pressure for automotive use, it requires trained manpower to store and distribution in cylinders fitted with internal combustion engines of Auto-rickshaw, Bus, Car and LCVs Tempo-truck

etc. In response to high fuel prices and increasing global environmental concerns, the **Natural Gas Vehicles (NGVs)** are increasingly used in developing and developed countries. Worldwide there were more than 15 million NGVs by 2011, plying in Iran, Pakistan, Argentina, Brazil, Latin America, Europe, and North America. In Asia Pacific Region particularly in India, where National Capital Region (NCR) Delhi and other metro cities Like Mumbai, Pune, Ahmedabad, Surat, Baroda, Rajkot, Lucknow, Kanpur, Agra, Indore and Hyderabad are using public transportation vehicles with clean fuels to reduce the **Air Pollution** Level. Managing involvement through employees driven system by providing **Behaviour Based Safety (BBS)** Training to all the stake holders of Clean Fuel Station is required for achieving safe working environment, maintaining an injury free work place and reducing risk of accidents for achieving the ultimate goal of sustainability and organizational growth for this sunrise sector, which consist of **City Gas Distribution (CGD)** companies engaged in high tech retailing of clean fuels by safely dispensing **Compressed Natural Gas (CNG)** to automotive vehicles at **Clean Fuel Stations (CFS)** and promoting it as most **Environment Friendly Fuel** of this era. The innovative marketing strategies involving BBS Training has tremendously improved the Safety Standards of all the CFS operating in India.

Literature Review

In the Year **1931** H.W Heinrich estimated that 88% of all near hits and workplace injuries results from the unsafe act and later it was tested empirically and now famous as “The Heinrich Triangle” which suggest that, the ratio between near miss incidents, minor injuries and major injuries are 300 : 29 : 1. Therefore it is always important to investigate the near hits in order to reduce future minor and major injuries since the 300:30 ratio of near misses to Injury is referred to as a “Heinrich- Law” (**1980**). To understand the BBS Training, theoretically, it is necessary to learn first about the learning concepts required for establishing safety process in an organization. Four levels of training were described in transforming learning to behavior for improving performances, namely: Reaction, Learning, Behaviour, and Results. For managing change effectively, a seven step systematic approach has to be adopted, first need or desire for change environment has to be determined, then a tentative implementation plan has to be prepared and analysed for probable reactions, then a final decision has to be made by establishing a time table and communicating the change for its effective implementation (Kirkpatrick, D L 1959).

Later P. Blanchard, (1986) described the Behaviour Modeling Process, which was found very useful for providing almost all types of skill trainings such as training in Interpersonal Skills, Sales Training, Interviewee and Interviewer Training, Safety Training, and for many other areas. This model was based on Albert Bandura’s (1977) Social Learning Theory and was focused on developing behavioural skills only; its initial steps reflects the Cognitively oriented approach and later steps follow the Behaviorist and Reinforcement approaches (P.Blanchard, 1986). Frank E. Bird (1997) added that the ratio of 600: 30 : 10 : 1, between near hits, property damage, minor and major injuries were on a much wider scale as the property damage was a physical trace of an accident and the precursor of an injury and remnant witness of the fatal inferno. The Behaviour that contributed to a property damage incident was likely unintentional human error. Therefore failure to report such property damage intentionally may be treated as highest degree of disregard to Safety. E Scott Geller’s (2001) described the concepts of Behaviour Based Safety (BBS) by understanding the Psychology of People responsible for ensuring safety in an organization. Later, Christopher A Janicak, (2002) defines tools and techniques for measuring the Safety Performance of an individual and of an organisation.

A total safety culture mission thus requires a vision for behaviour management, and continual attention for improvement through actively caring people. It can target only three factors, namely Person, Behaviour and Environment, which are responsible for influencing the safety culture of an organization (Geller E Scott, 2004). BBS Training requires a visible presence and full management support with an open communication down the line for its effective launching in an organization (Kaila H L, 2006). The positive impact of training on intermediate results of knowledge scores, and on job skill evaluation scores has been consistently observed on the increased productivity and the business performances in the service industry (Haque M I, 2007). Before launch of BBS program in an organizations, training exposure to all the employees is essentially envisaged, and an introductory workshop shall be called upon to introduce the vital components of Behaviour Based Safety Training such as Psychology of behavioural safety, its myths, its working, and its outcome, its implementations, its observations, feedback process, and the roles of employees in developing strong safety culture in the organisation (Kaila H L, 2009).

Peter R Lewis (2010), in Safety First Approach says that, sometimes products can be used longer after they have been ruled dangerously as bad headlines due to defective products can almost gut a company and small failures, multiplied by the million, can make for an enormous financial hit. There are often warning signs in many failure cases, warning that are ignored at peril.

Warnings of early failures must be heeded for prevention of disasters and product failure must be analysed by the unbiased and trained individuals, who are aware of their basic responsibility of ensuring safety and reliability (Peter. R. Lewis, 2010). Dr P T Shah (2010), In his article, Safety Consciousness: A self Motivation for Productivity suggest that Expenditure in Safety is an investment for production, Safety consciousness contribute towards better safety assurance, which increases confidence and team building and motivate a person to produce more and faster. Over confidence may be disastrous as safety is not a onetime affair, it has to be reviewed constantly through inbuilt organizational system, and regular training of workman's may be one of the safe guards which can meet this need (P T Shah, 2010). Iyer and Sagheer (2010) studied hierarchical structuring of PPP risk using interpretive structural modeling. Chen et al. (2011) compiled human risk factors on international hub airports considering Safety and Health as an important criteria for risk assessments. Fang and Marle (2012) developed a simulation based risk network model for decision support in the project risk management sector. Aloini et al. (2012) also used interpretive structural modeling to decide the level of each factor of human risk involved in risk assessment of projects. Regos (2012) compared power plant's risk with multi criteria decision model. Albert and Hallowell (2013) have also guided a research study on safety considerations in distribution sector. Bhar and Parihar (2014) have published a study on safety prospective of human risk management in transmission line installations and found that training and effective work place arrangements can drastically improve the overall risk management and following proper safety procedures during work are the most effective and efficient in dealing with most of the onsite risks to prevent the human safety mishaps to occur.

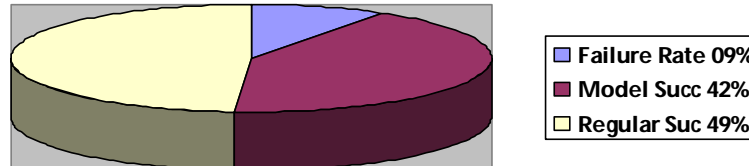
Rafiq M Choudhry (2014) has successfully implemented the well established concepts of BBS Training on the construction sites and found very significant results in improving the safe behaviour and reducing the unsafe behaviour of the engaged frontline workers. Very recent study on safety training by Karin and Thomas (2015) in oil and gas sector was found to be meaningful, as the workers see their competence as

more important for safety. Therefore it is obvious from the presented survey of last **85 years** of the pertinent literatures and the present research gap in this domain, the researcher is of the opinion that further research study in this area has to be well supported by the Premium Business Schools and Educational Training Research Institutes for sustainable business development and persistent industrial growth of this sunrise sector in India.

Overseas Outcomes

While studying the Innovative Overseas Implementation of BBS Training Processes of Various Industries during last ten years, i.e. from **1985 to 1994**, Thomas R Krause co-founder and CEO Behavioural Science Technology, Inc. Ojai, California and his associates found that rate of Failure was quite negligible and observed only in less than 10% Cases. The demographic data was collected from the different Behaviour Based Safety, Training process implantation sites among the population of universe of **181** Industries situated in the area. The sample size of **86** industries were selected as population of interest and on statistical analysis of the data, **42** were rated with regular success, **36** were with model success and only 8 were reported with failure giving the overall success rate of **90%** plus (Thomas R Krause,1997).

FIGURE 1:
THE OVER ALL SUCCESS RATE IS OVER 90%:

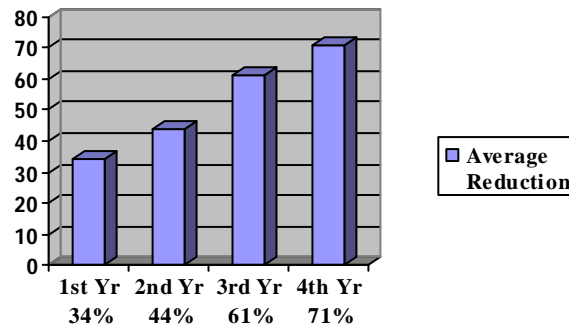


Source: Adapted from; The Behaviour Based Safety Process; Second Edition; Copyright 1997 by Thomas R Krause and “Reprinted with permission of John Wiley & Sons, Inc.” New York (USA).

The summary of major findings, with respect to Incident Rates and Workers Compensation Claims of some of the, Chemical companies, Electronic companies, Metal companies, Paper companies, and Petroleum companies were found to be highly significant and showed substantial Accident Reduction Rate over a period of four years of implementing BBS Training.

The average reduction in incident frequency after implementation of BBS Training in first year was recorded as **34%**, in second year as **44%**, in third year as **61%** and in fourth year it was found to have **71%** reduction from pre implementation average, all outcomes were judged significant (Thomas R Krause,1997).

FIGURE 2:
THE AVERAGE REDUCTION IN INCIDENT FREQUENCIES THROUGH 4 YEARS:



Source: Adapted from; The Behaviour Based Safety Process; Second Edition; Copyright 1997 by Thomas R Krause and “Reprinted with

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While Reduction in rate of workers compensation’s cost in term of dollars spent per employee is noticed as **71%** for Chemical Company, **55%** for Electronic Company, **22%** for Metal Company, and **61%** for the Petroleum Company (Thomas R Krause, 1997). In 1977, Walter D, Scott had also found Safety Training to be an important part of management development programme and is proven to be a successful method for reducing accidents, reducing waste and increasing quality (Scott, W.D, 1977).

TABLE 1:
THE REDUCTION IN RATE OF WORKER’S COMPENSATION:

Company (Worker Comp)	Average Before	Average After	Percentage Reduction	Out Comes
Chemical Co. (Comps. Cost)	\$240.4	\$68.9	71%	Significant
Electronic Co. (No of Claims)	157	70	55%	Significant
Metal Co. (Claims Rate)	0.45	0.35	22%	Not Significant
Petroleum Co. (Dollars Spent)	\$34800	\$13700	61%	Significant

Source: Adapted from; The Behaviour Based Safety Process; Second Edition; Copyright 1997 by Thomas R Krause and “Reprinted with permission of John Wiley & Sons, Inc.” New York (USA).

All the results were found significant except for Metal Company, where the claim rates were high therefore the outcome was not found statistically significant. Thus, from the above data, it can be concluded that, there exist a need to implement the BBS Training Process in an industrial organisation,

where Safety is of prime importance and substantial accident reduction rate is desirable, in terms of average reduction in incident frequency and workers compensation claims.

Indian Scenario

The available secondary data of fatal and non fatal injuries of reported industrial accidents in India, for the year 2006, 2007 and 2008 were quite horrific with a total number of 4,189 Fatalities and 1,10,098 Non Fatal Injuries (www.dgfasli.nic.in) accessed on 01-02-2011. India reported an average industrial accident frequency of 0.13 and average 4.53 rates of injuries per thousand workers from the year 2001 to 2005 and till 2007 surprisingly, there was no data reported for availability of at least an Industrial Safety Officer for the State of Delhi, Chhattisgarh, Himachal Pradesh and Manipur Region (www.dgfasli.nic.in) accessed on 01-02-2011. Therefore providing the BBS Training to CFS employees was considered as inevitable. By successfully implementing BBS training program during operation of CNG dispensing and providing effective BBS training, the operating CGD companies engaged in safe CNG marketing to their NGVs customers can very well achieve zero accident frequency and substantially reduce the rate of fatal and non fatal injuries at their work places through this employee driven system.

TABLE 2:
TOTAL NUMBER OF INDUSTRIAL INJURIES REPORTED IN FACTORIES:

Year	Nos. of Fatal Injuries	Total Nos. of Injuries	Frequency rate of fatal Injuries/Lac Man days Worked	Frequency rate of total Injuries/Lac Man days Worked	Rate of Fatal Injuries / thousand Worker	Rate of Total Nos. of Injuries / thousand Worker
2001	627	28364	0.07	3.24	0.19	8.67
2002	540	20453	0.13	4.88	0.16	6.14
2003	525	16432	0.08	2.50	0.11	3.33
2004	562	15020	0.05	1.33	0.08	2.21
2005	501	10714	0.08	1.64	0.11	2.30
2006	1349	44200	NA	NA	NA	NA
2007	1453	32763	NA	NA	NA	NA
2008	1387	33135	NA	NA	NA	NA

Source: Adapted from the official website of DGFASLI; <http://www.dgfasli.nic.in> accessed on 01-02-2011. India reported an average industrial accident frequency of 0.13 and average 4.53 rates of injuries per thousand workers from the year 2001 to 2005 and total number of 04,189 Fatalities and 1, 10,098 Non Fatal Injuries for the year 2006, 2007 and 2008.

It is palpable that, M/s. Adani Energy, British Petroleum, Castrol, Essar Power, GGCL, GSPC, Hikal, IFFCO, ORICA, Reliance Industries Limited, Tata Chemicals, and other organizations of repute, have already started implementing BBS Training process in their organisations, and most of them are getting positive results out of it. Since the significant differences exist on issues related to Safety amongst the CFS respondents of selected cities as their responses on selected criterions' were not found equal, justify the need of adopting a proper systematic BBS Training approach to address the lack of operational awareness, knowledge and skill. Thus by effective implementation of BBS Training Process at CFS, the CNG refueling activities can be handled Safely and at the same time the accidents can be reduced substantially in near future and Safe CNG marketing through employees driven system can be made possible in this emerging sun rise sector in India too. Let us have a close look at the current state of

affairs of Clean Fuel Stations operating in India between periods starting from 15th of Oct 2009 onward up to 15th of Oct 2014.

TABLE 3:
Current Scenario of Operational CFSs in India as on 15 Oct 2009 to 15 Oct 2014:

Sr. No	State	2009	2010	2011	2012	2013	2014
1	Gujarat	173	200	257	303	331	342
2	Delhi	169	195	220	250	259	270
3	Maharashtra	134	151	161	162	185	202
4	Uttar Pradesh	27	35	48	69	78	86
5	Andhra+Telang	11	13	22	30	33	11+22
6	West Bengal	08	09	11	09	07	07
7	Haryana	07	13	14	17	17	18
8	Madhyapradesh	06	11	15	17	17	20
9	Uttara Khand	02	02	02	02	02	02
10	Tamil Nadu	01	01	01	01	01	01
11	Daman	01	01	01	01	01	01
12	Dadra N Haveli	00	01	01	01	01	01
13	Tripura	00	01	02	02	04	05
14	Rajasthan	00	00	03	03	03	04
	Total CFS	539	633	758	867	939	992

Source: <http://www.peso.gov.in>, Accessed on 16-10-2009, 2010, 2011, 2012, 2013 & 2014.

State of Gujarat

Being the “**Petro Capital of India**”, It has already secured, top place by operating highest **342** Nos. of CFS and leading ahead of all other states. It can be seen that the metro city Ahmedabad and tier two cities are growing very fast due to abundance of natural gas availability in the state.

TABLE 4:
Current Scenario of CFS Operating in different cities of Gujarat as on 15 October:

SN	District	2009	2010	2011	2012	2013	2014
1	Ahmadabad	59	65	68	76	72	72
2	Surat	30	31	35	39	46	51
3	Rajkot	16	18	26	29	31	32
4	Gandhinagar	13	15	15	18	21	20
5	Vadodara	12	13	22	25	24	25
6	Valsad	09	11	17	19	19	19
7	Kheda	06	06	09	15	17	17
8	Mehsana	06	09	12	16	21	21
9	Navsari	06	07	09	09	10	11
10	Bharuch	05	08	13	15	16	16
11	Surendranagar	05	05	12	13	16	16
12	Panchmahal	03	03	04	04	04	04
13	Sabarkantha	02	03	03	04	06	08
14	Banaskantha	01	01	01	02	02	02
15	Anand	00	05	10	14	16	17
16	Patan	00	00	01	01	01	02

17	Bhavnagar	00	00	00	04	07	06
18	Jamnagar	00	00	00	00	02	03
	Total Nos. of CFS	173	200	257	303	331	342

Source: Ibid.

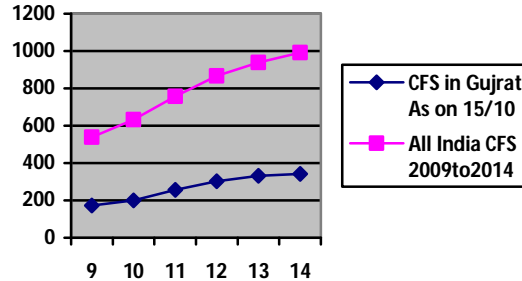
This rapidly growing sunrise sector in the state is being managed by the oil sector PSU's; State Government undertakings, co-operative sectors, and private sector as well as by the subsidiaries of MNC's also. The present boom of rapidly growing natural gas sector in the state of Gujarat is highly dominating as compared to other parts of the country. Due to abundance of natural gas presence in the state, more number of operating gas companies' are offering CNG services for the environmental savvy consumers of the state, who firmly believes in Safety and prefer to procure only Clean and Green Fuels for their automotives.

TABLE 5:
Current Scenario of organizations operating CFSs in the State of Gujarat as on 15 Oct:

SN	CGD Company	2009	2010	2011	2012	2013	2014
1	BPCL	49	58	68	79	91	91
2	HPCL	37	41	59	65	60	66
3	IOCL	29	32	44	47	45	47
4	Gujarat Gas Co.Ltd. (GGCL)	28	33	38	45	49	54
5	Adani Energy Ltd. (AEL)	15	17	14	14	17	13
6	Gujarat State Petroleum Corp. (GSPC)	10	14	21	25	35	36
7	Sabarmati Gas Co.Ltd. (SGCL)	03	03	03	03	03	03
8	Charottar Gas Co-Oprative Mandal	01	01	01	01	01	01
9	GAIL	01	01	02	02	02	02
10	Essar Oil Ltd.	00	00	07	22	28	29
	Total Nos. of CFS	173	200	257	303	331	342

Source: Ibid.

FIGURE 3:
Current Growth Rate of Clean Fuel Stations (CFS) Operating in the State of Gujarat:



Source: Ibid.

It can be inferred from above figure, which illustrate that the current growth rate of operating CFS in the state of Gujarat is at par with the rest of the country. As **10** Nos. of CGD companies are presently operating **342** Nos. of CFS in the state, covering around **34.5%** population of available **992** Nos. of operating CFS of the entire country till 15th. October 2014.

Research Objectives

Aim of this research study was to explore, identify, analyze, evaluate and report on multiple influences caused on learning behaviour and training process as well as beliefs, intentions and, Attitudes of selected CFS Respondent's towards BBS Training drawn randomly from amongst the operating CFSs located in the selected cities of the six districts of the state of Gujarat. The major objective of the research study was to map the perceptions of CFS respondent's behaviour on Safe CNG Marketing, to measure the level of awareness on safety issues and to gauge the benefits of BBS Training outcomes on the Safe Behaviour of the Respondent's working at CFS.

Research Methodology

The structured non-disguised questionnaire, designed as Research Instrument for collection of required primary data, was utilized and six criterions namely Overall Behaviour (OB), Training Benefits (TB), Awareness of Operation (AO), Safety Measures (SM), Safety Norms (SN), and Recommendation for Refueling (RR), were finally selected for conducting this research Study. Two different sets of questionnaires were prepared for each type of the respondents of English as well as of Gujarati language to help the respondents to better understand and to respond to it.

The **Critical Behaviour Checklist (CBC)** method was used for preparation of the detailed questionnaire and to collect opinions on safe refueling practices being adopted at CFS. The outcomes were tested for its validity and reliability. On computing the Convergent Validity Scores for all group indicators together, it was practically found to be more than **0.6**, which ultimately confirmed the internal reliability of the scale used and thus validated the prescribed Research Instrument used for this **Exploratory Research Design**, "As in the early stages of research on predicted test or hypothesized measures of a construct, one saves time and energy by working with instruments that have only modest Reliability, for which purpose reliabilities of 0.60 or 0.50 will suffice" (p.226) Nunnally, J.C. (1978).

Hypothesis

The following six null and alternate research hypotheses were formulated for all the employees' respondents, managing safe CNG refueling services for visiting NGVs at Clean Fuel Station.

1-6 H₀: Significant differences do not exist in the mean scores of opinion of CFS Respondent's in terms of six selected criteria namely Overall Behaviour (OB),/ Training Benefits (TB),/ Awareness of Operation (AO),/ Safety Measures (SM),/ Safety Norms (SN),/ and Recommendation for Refueling (RR) at CFS with respect to the selected cities of state of Gujarat.

1-6 H₁: Significant differences exist in the mean scores of opinion of CFS Respondent's in terms of six selected criteria namely Overall Behaviour (OB),/ Training Benefits (TB),/ Awareness of Operation (AO),/ Safety Measures (SM),/ Safety Norms (SN),/ and Recommendation for Refueling (RR) at CFS with respect to the selected cities of state of Gujarat.

Sampling Rationale

The Non - Probability Sampling Design was applied based up on the Simple Random Sampling (SRS) Methods for the **Convenience Drawing** of samples from the current population of the selected CFS Respondent's amongst the Selected Cities of State of Gujarat. However, In the **Absence of Exhaustive List** of available total respondents across the state of Gujarat, the Primary Data were collected personally in the months of July and August in the year 2011, from the total number of **123** respondents who were either dispensing CNG or operating CFS and providing CNG refueling services through their CFSs located in the selected cities comprising of selected six district of the State of Gujarat, India.

To Randomize the Procedures further the minimum sample frame was calculated for **95% CL, 05% Error** and considering **50%** Response Distribution, which comes out to be minimum **119** numbers, but **123** responses were **Randomly** collected from CFS respondents, who so ever were present and at the same time was willing to respond to the questionnaire, which was finally found to be comprised of more than the **50%** concentration of the total available population of **240** numbers of operating CFS in the state of Gujarat at the time of collection of Primary Data.

TABLE 6:

Zone wise concentration of available population of CFS operating at the time of Sampling:

North Gujarat		South Gujarat		East Gujarat (Central)		West Gujarat (Saurashtra)	
Districts	Nos.	Districts	Nos.	Districts	Nos.	Districts	Nos.
Ahmedabad	61	Surat	36	Vadodara	20	Rajkot	24
Gandhinagar	13	Navsari	08	Anand	09	Surendranagar	11
Mehsana	11	Valsad	16	Bharuch	13		
Sabarkantha	03			Panchmahal	04		
Banaskantha	01			Kheda	09		
Patan	01						
Total	90		60		55		35

Source: <http://www.peso.gov.in>. Accessed on 16-04-2011

Current Population of CFS were found as, (North=90 + South=60 + East=55 + West=35); Comprising of total=240. Population of Interest (POI) comprised of the highest numbers of CFS in each Zone. Ahmedabad (61) and Gandhi Nagar (13)

from North Zone, Surat (36) and Valsad (16) from South Zone, Vadodara (20) from East Zone and Rajkot (24) from West Zone, gives a total of 170 Nos. of CFS selected for collection of Primary data out of 240 Nos.

Discussions

The demographic data indicated that majority of the CFS Respondent’s were of 18-30 age group, married, male, below SSC, getting less than Rs.10,000/- monthly salary and were Hindus. They were found managing refueling services of Auto, Cars, LCV and Buses from the service providers like GSPC,ADANI,BPCL,HPCL,IOCL and GAIL’s CNG retail outlets for more than 2 years but were found being deputed for attending safety training only once in a year basis. All the collected responses were subjected to the reliability, validity, scale measurement, frequency distribution, factor analysis, one way ANOVA and chi square Test.

TABLE 7:
Summary of Indicators and Cronbach Reliability Alpha Scores of CFS Respondents:

Sr. No.	Grouped Indicator Items	Cronbach Reliability Alpha Coefficient
01	Operators’ Perceptions for working of CFS refueling CNG based on criteria related with Overall Behaviour	0.605
02	Operators’ Perceptions for working of CFS refueling CNG based on criteria related with Training Benefits	0.607
03	Operators’ Perceptions for working of CFS refueling CNG based on criteria related with Awareness of Operations of Clean Fuel Stations	0.602
04	Operators’ Perceptions for working of CFS refueling CNG based on criteria related with Safety Measures to be followed at Clean Fuel Stations	0.616
05	Operators’ Perceptions for working of CFS refueling CNG based on criteria related with Statutory Norms to be adopted at Clean Fuel Stations	0.601
06	Operators’ Perceptions for working of CFS refueling CNG based on criteria related with Recommendations for Refueling	0.800
	Overall Reliability Score of all Indicators together for Operators	0.829

Cronbach’s alpha ranged from 0.601 to 0.800, and Overall Reliability Score of all indicators together were measured as 0.829, which really shows internal reliability of the scale for respondents.

The convergent validity of the Structured Questionnaire was measured by comparing the mean scores of grouped items with other measures of the same construct. Results supported the strength of linkage between the statements which thus fulfill the condition of convergent validity.

TABLE 8:
Comparison of Mean Scores of Extent of Respondent’s Opinion about Services at CFS:

Operators’ Opinion with respect to Criteria		Operators’ Overall Opinion with respect to Criteria		Difference in Mean Count (Column 2 – Column 4)
Rating Scale 1 (Disagree), 2 (Can’t Say) & 3 (Agree)				
(Q-6 - 1 to 71) & (Q-7 - 1 to 22)	Mean Score (Rank)	(Q-8 -1 to 6)	Mean Score (Rank)	
1	2	3	4	5
I am happy with the Overall Behaviour of the Operators visiting Clean Fuel Stations	2.87 (4)	I am happy with the Overall Behaviour of the Operators visiting Clean Fuel Stations	2.97 (2)	- 0.10
In my opinion Behaviour Based Safety Training given to the operators is quite Beneficial in ensuring safe refueling at	2.89 (3)	In my opinion Behaviour Based Safety Training given to the operators is quite Beneficial in ensuring safe refueling at CFS	2.98 (1)	- 0.09

CFS				
I am Aware about Operations of Clean Fuel Stations	2.92 (2)	I am Aware about Operations of Clean Fuel Stations	2.98 (1)	- 0.06
I am aware of Safety Measures to be followed at Clean Fuel Stations	2.83 (6)	I am aware of Safety Measures to be followed at Clean Fuel Stations	2.98 (1)	- 0.15
I am aware of Statutory Norms to be adopted at Clean Fuel Stations	2.84 (5)	I am aware of Statutory Norms to be adopted at Clean Fuel Stations	2.98 (1)	- 0.14
I Recommend, other Operators for Refueling from my Clean Fuel Stations for its good quality of service	2.94 (1)	I Recommend, other Operators for Refueling from my Clean Fuel Stations for its good quality of service	2.96 (3)	- 0.02
Overall Average	2.88		2.97	- 0.09

It is seen from the above table that results are supporting the strength of linkage between the six statements which thus fulfill the condition of convergent validity test.

Conclusions

From the above discussions on data analysis using statistical software SPSS 15.0, following conclusions can be drawn with respect to selected CFS Respondent's of selected cities in the state of Gujarat. The total response counts for overall training benefits of CFS Respondent's were reported lowest in north and south Gujarat i.e. in Gandhinagar and Surat, followed by Valsad, where as Vadodara, scored the highest frequency, followed by Ahmedabad and Rajkot Districts of Gujarat State.

The detailed analysis of the primary data with respect to six selected criteria shows significant variation amongst different respondents of different districts on important safety issues like operational awareness, safety measures, and safety norms which indicated that lack of knowledge and skill persist amongst the CFS Respondent's of different cities as their responses were not found equal on critical safety issue. The refueling recommendations results were similar to patients' satisfaction measurement in hospitals by Vyas, P H (2010). The study revealed that most of the respondent operators were agreeing on following training benefits of BBS Training at CFS, that Safety Training can minimize Near Misses, Safety Training can Set Up Accident Free Workplace, Safety Training can achieve Zero Accidents at Clean Fuel Station, Safety Training is helpful in improving quality of services rendered by individuals working at CFS, and With investment on imparting the BBS Training, Company's Annual Profitability increases. On rest of the criteria either they were undecided or disagreeing based upon their individual knowledge and belief on the subject.

The results of One-way ANNOVA & Post – Hog Test (Tukey HSD) suggested a significant mean difference exists amongst selected CFSs in selected cities, as it is evident that at least one mean was found to be different from other at the 0.05 % significance level. The Post Hog (Tukey HSD) Test revealed that Respondents' opinion for Overall Behaviour, Training Benefits, Awareness of Operations; Safety Measures and Safety Norms and Refueling Recommendations Criteria were also different amongst selected respondents of the CFS in selected cities. Since the Levine's P value is less than 0.05 (P – value < 0.05) that means variance of all type of CNG Stations in selected cities, are not equal. As P value is < 0.05 that means it has a significant value. So, P value of at least one of the city was found to be different from others, thus it can be concluded that significant differences exist in the mean scores of opinion of CFS Respondents' with respect to selected cities. The results of the Chi-Square Test applied

for testing of hypothesis formulated for CFS Respondents' in selected cities, were found to be different on selected criteria's, when tested for their average opinion about their Overall Behaviour, Training Benefits, Awareness of Operations, Safety Measures, Safety Norms and Refueling Recommendations at all Selected CNG Stations in selected cities. Thus it can be concluded that, the Null Hypothesis for all the CFS Respondents were found to be rejected, as the results fail to accept the Null Hypothesis in all the cases.

Thus undoubtedly they requires BBS Training to improve upon their overall behaviour to gain the maximum training benefit in terms of reducing the chances accidents during refueling of CNG at their respective CFS located in different cities. Their actively caring behaviour also improves safety at work place and at the same time attracts other customers to revisit the CFS, due to increased refueling recommendations of the respondents. Therefore, it can be concluded that, the **BBS Training** is found to be a very useful tool to increase actively caring behaviours of CFS Respondent's and it may be used to spread knowledge skills and attitude, required for improving safety and reducing at-risk behaviours of others to avoid accident mishap, which in turn will certainly increase the safe CNG marketing at CFS.

Recommendations

Based upon the major findings of this research study undertaken on safe marketing of CNG across Gujarat, the following recommendations are put forward. The study revealed that majority of CFS employees working at CFS were not much aware about training benefits of BBS Training, which can be planned for their education and spread of knowledge on the subject. Safety Awareness Campaign, Display of Safety related Dos and Don'ts, Distribution of Safety Instruction Cards and Procedural Guidelines Pamphlets through Road Shows can be organized for them on regular basis at CFS. The study also evidenced that selected Respondents' are not generally exposed to safety training. They should be mandated to undergo training at least once in six month basis to help them to get exposed to the new things happening outside the world on the subject domain and enable them to increase their knowledge and experience to handle things safely by onsite demonstration, training programmes, FM Radio clippings and visual ads may also be used. There is a need for a concrete action on the part of the law enforcing agencies to make suitable amendments in the existing regulations for making such training mandatory and necessary to be organized at regular intervals at CFS particularly for CFS employees managing CNG refueling services at CFS in the interest of public safety. There is a need to properly document and design the specific programme on BBS Training for all the employees of CFS for capacity building, spreading knowledge on this domain and developing skill for safe handling of CNG refueling operations of NGVs. All recommended Safety Measures to be firmly adopted at CFS for ensuring Safety at Work Place and the same may be taught through periodic training to every individual visiting CFS with the help of latest training tools and techniques.

All prescribed Statutory Norms to be strictly complied in, to make CFS a safe place for refueling CNG in automotive vehicles. Periodic internal safety audit and rigorous inspection drives at regular intervals may be carried out. All CGD companies engaged in dispensing CNG must provide BBS Training to all the stake holders for reducing risk of accidents and creating a safe working environment in and around CFS. Continuous efforts may be taken to develop a strong safety culture in order to identify the near misses and source of potential hazards to avoid occurrence of accidents at CFS. To achieve the mission of Zero Tolerance towards Accidents both, quality of services rendered by the employees working at CFS and behaviour of NGV Drivers or domestic passengers visiting CFS has to be improved.

Limitations

This study was undertaken with its own geographical as well as demographical limitations as conducted only in Gujarat with limited numbers of variables and for specific time duration. This study proceeded with the assumption that, the questionnaire on different parameters will elicit a forth right response from the respondents selected at the convenience of the researcher.

Implications

This experiment of managing involvement for safe CNG marketing through employees driven system at CFS shall contribute to the respondent's learning behaviour and training decisions, apart from its contribution to the existing academic theories on BBS training processes. This research shall add to the literature on learning behaviour and training methodologies, through the survey of the influence of the selected factors on the beliefs, attitudes, and intentions of the CFS respondent's. Identification and measurement of the personal variables, beliefs and attitudes shall be able to help the establishment and legislation of customized training programs, like BBS Training, its implementations shall be made mandatory for all the CGD companies operating the CFS in the interest of safe CNG marketing. The results of this research study shall help to identify a suitable type of training that affects the choice and training decision process for enrolling to a particular type of safety training called BBS. Its results shall contribute to the formulation of the better training strategies for all types of respondent's such as Managers, Operators and Visiting Drivers of the CFS to improve upon the Safe CNG Marketing practices in the interest of reducing the risk of accidents at work place and to ensure Public Safety.

This study is also very significant for several reasons in relation to both learning theories and BBS training applications for all the stake holders of this emerging sun rise sector of India in near future. The respective objectives of this research study shall help the service providers of CFS in better understanding the role of certain selected variables or factors in selecting and implementing the BBS training process. It will help them in attaining zero accidents at work place and more accident free man-hours at the various stages of CNG retailing operations. The study shall also be an add providers in recognizing the role of the **HR Managers** about their safety training decisions in relation to their attendant's behaviour, while refueling the Clean Fuel Products for safe and clean environment as part of CSR charter of their organisation.

Thus, as part of the organizational **Corporate Social Responsibility** (CSR) initiatives for nurturing and promoting the brand image of supplying CGD Company in the society, it is necessary to implement the BBS training process. To manage this sunrise sector in generation next, effective marketing strategies and better HR Practices has to be developed. To be fully compliant to the government rules and regulations, licensing authority's instructions, labour legislation, environment protection, occupational safety and health administration, the CFS has to adopt an effective **Human Resource Management System** (HRMS) for managing day-today affairs. This will create a new avenues and future positions for HR Managers to show their capabilities in training the available human resources and **Safe Marketing** the clean fuel products and offer variety of services up to the delightedness of their customers arriving at CFS for refueling of their automotive vehicles.

Declaration

The ideas expressed in this research paper are personal and does not necessarily represent the views of any organizations and of any other companies studied in general, however all institutional and corporate affiliations supporting the study are acknowledged. The author does not have any commercial association that might represent a conflict of interest in connection with publication of this research

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