



INTERNATIONAL JOURNAL OF RESEARCH IN COMMERCE, IT AND MANAGEMENT

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INFORMATION TECHNOLOGY AND ITS APPLICATION AMONG USERS & NON-USERS IN IRAN

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ABSTRACT

The study at hand namely, "Information Technology and its application among users & non-users in Iran ", deals with the current state of affairs in the field of agribusiness of the traditional crops in Iran, namely pistachio and saffron. It goes to show the current state of affairs as currently being followed by the stakeholders. It has been observed that the aim of the study has been satisfied as there was a clear evidence of positive progress by those who made use of IT tools as against those who kept themselves away from it. There has been found to be wide curiosity and willingness among all the users and non users towards the use and acceptability of the IT tools and also areas for further development have been stated and listed in the study. The main aim of the study, as stated in the objectives of the study was to ascertain the level of benefits derived from the use and it was found that the users did perform better as compared to the non users. Numerically the findings have been proven and the possibility of the same to be that representing the complete population engaged in the trade can be taken as representative as the study was conducted by picking up the sample population by use of simple random sampling. There does exist a vast area of scope for the outcome of the study to be implemented as it would give out a clear difference in the way that things are being done at present and also it would result in qualitative and quantitative improvement in the output. This carries more importance as the country it is with the matter of concern that the topic was selected as the target of study. This is due to the reason that improvement in the area would surely give a boost to the manner in which things are being done and this would in turn result in improvement in the quality and quantity of the output of which the country takes pride to be a leader in the production and availability.

KEYWORDS

IT, Iran.

INTRODUCTION

Agriculture can be defined as the oldest of all trades known to mankind. It has evolved itself from ancient times to take the shape as we know it today. The activity has taken in its stride many improvements and has improved with experience, modernization and innovation.

AGRICULTURE IN IRAN

Roughly one-third of Iran's total surface area is suitable for farmland, but because of poor soil and lack of adequate water distribution in many areas, most of it has not been brought under cultivation. Only 12% of the total land area is under cultivation (arable land, orchards and vineyards) but less than one-third of the cultivated area is irrigated; the rest is devoted to dry farming. The western and northwestern portions of the country have the most fertile soils due to geographical advantage that they enjoy.

Agricultural activities accounted for about one-fifth of Iran's gross domestic product (GDP) and employed a comparable proportion of the workforce. The size of the farms with poor economic viability, scarcity of water, poor soil conditions, low quality seeds and farming techniques have resulted in poor agricultural yields. The gross value of products in Iran's agricultural sector had reached \$25 billion in 1997. As per the government statistics the country has attained 94 percent self-sufficiency in essential agricultural products.

ROLE OF INFORMATION TECHNOLOGY

The market users require information on their activities / functions carried out by them in the process of marketing. This information facilitates them to make decision on what to produce? Where to produce? How much to produce and how to produce in respect of production of agricultural commodities. Similarly, they require information on marketing to take decision on where to sell, how to sell, how much to sell and when to sell. In the absence of such information, the farmers fail to take appropriate decision while producing or selling their commodities. Even the other market users like traders, commission agents, importers exporters, storage operators, processors etc do require information on their functions to make proper decision. Therefore, the information to market users is crucial without which the efficiency of marketing cannot be enhanced. In this direction, IT plays an important role in providing such information to the market users.

Information technology plays an important role in decision making process. The producers can make their decision on both production and marketing activities. Their marketing and production problems can be addressed very easily when accurate information is made available to them on time.

In this direction, Information Technology has become an important tool for providing correct information to the market users. The answers for the production and marketing questions could be best obtained by the use of improved technology which would be instrumental to solve most of the problems of the farmers in particular and market users in general. This would increase their profit and reduce the unnecessary cost of marketing.

IT IN AGRI-BUSINESS

In order to achieve greater efficiency in agri-business system that is in production and marketing of agricultural commodities, the integrated information on the following is very much required and has to be supplied by the agencies concerned:

- Availability and prices of different inputs.
- Crop cultivation technologies which are agro-ecology specific.
- Information about post-harvest infrastructure such as processing, value addition and storage.
- Agricultural of products demand and supply, prices etc.
- Marketing system cost of marketing, prices of agricultural commodities.
- Import and Export of agricultural commodities, prices at international market demand and supply of Agri – commodities.
- Government policies, programs etc.

NEED FOR THE STUDY

In the recent decade, the introduction of new technology has changed the industrial, agricultural and military sectors in Iran. It is noticed that the emergence of IT in these sectors is of high relevance and most required for the development of the country's economy. This study would throw light on the growth of IT in agribusiness and its impact on enhancing business activities with increased quality, reduce the cost of marketing and there by increase the producers share in a consumer rupee. This would help the policy makers in framing appropriate policies, programs and to initiate strategies to reduce the gap between the producers and the end users. In this regard, the present study aims to address some of the issues that would emerge in the light of IT revolution in Agribusiness activities.

METHODOLOGY

Methodology gives the details on study area, selection of samples, sources for data, and analytical tools and techniques employed for the study. This study is based on both primary data and secondary data. Primary data relates itself to the market users / participants such as producers, traders, exporters, processors. Such data are obtained from administering a well structured questionnaire to all market functionaries. Secondary data is obtained from the government publications, journals, International reports, FAO publications etc.

The chi-square test is employed for analyzing the obtained responses. As it was thought to be best suitable for the prevalent conditions at the time. The tool got acceptance for the significance due to the fact that the same was recommended by the investigators who came out with the method based on related activities that they have conducted for various and obvious purposes in the past on the subject.

Iran is divided into thirty provinces, with Razavi Khorasan and Kerman being two major provinces in eastern Iran. Pistachios and saffron are the two major commodities cultivated in Razavi Khorasan province (saffron) and Kerman (pistachio). In case of Pistachio, Iran is the World's largest producer with 40% of the world's output in 2005, where it is the second largest export commodity after oil. Iran also the World's largest producer of saffron with 81% of the world's total output.

The research survey covered all the key players of the pistachio and saffron industry such as pistachio and saffron producers, traders, processors, and exporters with different customized questionnaires. The key reasons for this extensive primary survey were to understand and to collect first hand information from the key players in fulfilling the objectives of the study such as the use of Information and Technology in obtaining inputs by the farmers and to fulfill the requirements of the consumers in the domestic as well as in the international markets. The particular reason for covering these major players is to understand the impact of IT in Agri – business activities in the area of study. The current data refers to 2007-2008. The stake holders are stratified into three groups namely Big, Medium and Small. The samples were drawn from all these three groups by using simple random sampling method.

RESEARCH FINDING

Information technology means the use of electronic automation in the area of occupation. The use of computers is widely practiced which facilitates the work as it also goes into preparing work specific software for the purpose. The tools as provided by IT assist in making the work undertaken to be done in a better and more efficient manner keeping the current dynamic and rapidly growing market conditions and extents.

IT & AGRICULTURAL PRODUCTION ACTIVITIES

In the field of agricultural inputs and services, Information Technology can be used for demand and supply monitoring and issues related to the agricultural inputs and the latest scientific information on the agriculture sector. For instance, information related to the seeds, fertilizers, and pesticides can be available to the farmers to help them in speedy procurement of such inputs at lower prices and in appropriate places. Moreover, the latest information on availability of quality planting material, information related to the whether, types of pesticides and the appropriate time of using them, and type of the fertilizers to increase productivity, information on the HYB seeds, and information related to post harvest, i.e., the methods and time of harvesting need to be posted on the appropriate websites regularly. Information Technology can help farmers accomplish all of these tasks appropriately, with least time and costs.

IT & AGRIBUSINESS ACTIVITIES

Advancement in information and communication technology has made the world a smaller place and a larger market at one go. The availability of prompt and reliable market information about what is happening in the market i.e. what quantities are arriving and what prices are quoted for different commodities considerably improve the decision making capability of the farmers and strengthens their bargaining power. For example, accurate and timely information about the market prices of the agricultural commodities is of extreme significance, which can be done by appropriate use of IT. At present, in developing countries like Iran, information is disseminated through various media like radio, newspapers, blackboard display and public address system at market yards. The information provided by these methods is stale and does not help the farmers sufficiently in taking decisions in marketing their produce. The farmers are also not able to know about the prices prevailing in other markets, as the Market Committees are able to disseminate information only in respect of their own markets. The farmers are therefore, left with no alternative but to dispose of their produce in the nearest market, even at un-remunerative prices. Market information is equally needed by other market participants in arriving at optimal trading decisions. To fully utilize the new emerging trade opportunities for the benefit of farming community, agriculture marketing information system in the country needs to be strengthened and Information and Communication Technology has a vital role to play in the process. The existence of a comprehensive database and dissemination of complete and accurate marketing information is the key to achieving both operational and pricing efficiency in agricultural marketing system. In order to improve the present agricultural marketing information system, there should be a link between all important agricultural produce markets.

Based upon the data and interpretations of the data, the crux of the findings, objective wise, is as follows:

METHODS OF INFORMATION TECHNOLOGY USED IN AGRICULTURAL SECTOR

From the various methods of information technology available such as telephone, television, internet, radio, newspapers and government publications, it was found that telephone and the internet are the major means as a source of information among all the categories of the stakeholders.

TABLE I: USE OF IT AMONG MARKET USERS IN IRAN

Type of Users		Use of IT among Market		users (percent)
		Yes	NO	
Producers	Big	30.0	70.0	100.0
	Medium	26.0	74.0	100.0
	Small	28.0	72.0	100.0
Traders	Big	75.0	25.0	100.0
	Medium	70.0	30.0	100.0
	Small	58.0	42.0	100.0
Processors	Big	55.6	44.4	100.0
	Medium	54.5	45.5	100.0
	Small	55.0	45.0	100.0
Exporters	Big	80.0	20.0	100.0
	Medium	85.7	14.3	100.0
	Small	68.4	31.6	100.0

Source: primary Data

GROWTH IN IT AND ITS IMPACT ON DEVELOPMENT OF AGRI-BUSINESS ACTIVITIES

Majority of the stakeholders accept that they do require assistance from IT in their business which goes to show that the study conducted has relevance and would find wide acceptability as it did exhibit the difference of using the assistance of IT in the activity to the non users who have put forth their willingness to accept it in their work.

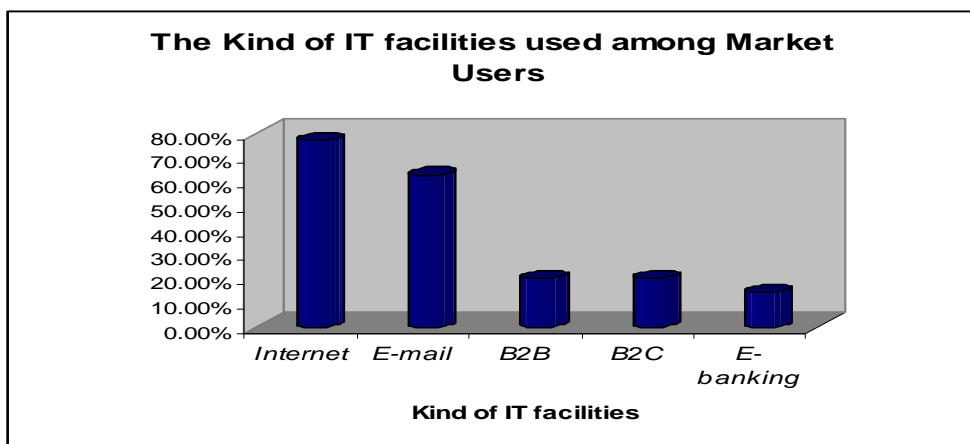


TABLE II: IMPACT OF NEW TECHNOLOGIES, ESPECIALLY IT, AMONG MARKET USERS

Type of Users	Impact of new technologies, especially IT, among Market Users (%)						
	Very Low	Low	Middle	High	Very High	Total	
Producers	Big	0.0	8.2	32.6	30.6	28.6	100.0
	Medium	5.1	7.1	22.2	27.2	38.4	100.0
	Small	2.0	4.1	25.0	28.4	40.5	100.0
Traders	Big	0.0	10.5	52.6	21.1	15.8	100.0
	Medium	3.4	13.8	44.8	31.0	6.9	100.0
	Small	2.0	16.3	59.2	20.4	2.0	100.0
Processors	Big	0.0	0.0	25.0	25.0	50.0	100.0
	Medium	0.0	0.0	0.0	30.0	70.0	100.0
	Small	0.0	0.0	20.0	30.0	50.0	100.0
Exporters	Big	0.0	0.0	30.0	60.0	10.0	100.0
	Medium	0.0	0.0	52.4	33.3	14.3	100.0
	Small	2.0	0.0	36.8	52.6	10.5	100.0

Source: Primary Data

MARKETING EFFICIENCY AMONG THE IT USERS AND NON-USERS

The tools of IT have helped the stakeholders differently. It has come to the aid of the producers in the search for new markets, time of sale, demand for the commodity, production information and place. For the traders the order of the same changed as the demand descending from markets, business information, time and place. In the case of processors the sequence was as new markets, time of process, demand and process information. The exporters used the same in the sequence of export information, transport information and international price. It has commonly been observed that demand and market were in the list of requirement among all the stakeholders

IT AND DECISION MAKING PROCESS IN AGRIBUSINESS

The effect of IT in the decision making process was seen to be high for producers and the exporters whereas it was found to be commonly at 100% among the traders and processors.

GOVERNMENT POLICIES AND PROGRAM IN PROMOTING IT IN AGRIBUSINESS IN IRAN

Finally the requirement of further enhancement by all the stakeholders was found to be in the areas of computer knowledge, development of IT facilities and regular orientation programs as put forth by the producers and the traders. The processors called for the improvement of computer knowledge, regular orientation programs and improvement of IT facilities. In the case of the exporters the focus of attention requirement was found to be sequenced as development of IT export facilities, improvement of computer knowledge and regular orientation programs.

POLICY IMPLICATIONS & CONCLUSIONS

Wherein a few insights for improving the situation based on ground realities and flexibility of the system is put forth. It brings out the gist of the entire observation of the study which would give an understanding of the intention and direction of the study thereby bringing out the very reason why the study at hand was carried out. It puts forth the main objective of the purpose which is mainly to bring about modernization in the traditional activity which would bring about marked changes in the way things are being carried out presently and also the way it would be done after the application of the improvement steps where the involvement of the government also shows significance that there seems to exist an amount of collective understanding of the need for the same.

It is the crux of the exercise bringing out the basis and also the direction of the study at hand which would give a glimpse of that which follows in the detailed chapters enclosed in the work and its report.

To summarize the study based on the data obtained from the stakeholders and also from personal field experience, it is a fact that the need of the hour is to imbibe a sense of the need and also the importance of IT and its implication on the traditionally bent community. The results, as the detailed study would put forth would throw light on the amount of its need and also the importance of the study which would flower its fruits on its execution.

IT has its own benefits of usage which could be best experienced only by its Judicious and proper use. There is a clear observation that the existing facilities need to be prepared so that they could meet with the increased demand for the same. It is very important to create awareness on the use of IT in agri-business

activities by the stakeholders. This would really enhance the quality output in agri-business sector.

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ACADEMIC STAFF'S PERCEPTION OF ADMINISTRATIVE STAFF SERVICES IN ETHIOPIA: A CASE STUDY OF ADI-HAQI CAMPUS, MEKELLE UNIVERSITY

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ABSTRACT

This paper aims to explore, analyze, and measure the academic staff's perceptions on administrative service quality. The study used a survey method to elicit perceptions from a total of 81 sample respondents, 74 academic staff were responding the questionnaires. The results showed that service expectation was not met; assurance and empathy dimensions are identified as the most predictors of the academic staff's overall service satisfaction; overall satisfaction had positive significant impact on their propensity to recommend and switching intention. Conclusions are drawn about academic staff's perceptions of administrative staff services in the College of Business and Economics (CBE) and College of Law and Governance (CoLG). Generalization to the university as a whole may not be legitimate; an all-inclusive research is suggested to measure how the academic staff perceives the administrative services. This study provides insights into the measurement of administrative service perceptions.

KEY WORDS

Expectations, INTSERVQUAL, Perceptions, Satisfaction, Quality.

INTRODUCTION

Service quality is defined as *the post-consumption evaluation of services by consumers that compare expectations with perceptions of performance* (Parasuraman et al., 1985); *the customer's overall attitude towards the company* (Bitner, 1990; Parasuraman et al., 1988; Zeithaml, 1988); *the extent of the discrepancy between customers' expectations or desires and their perceptions* (Zeithaml et al., 1990); *the ability of the service organization to meet or exceed customer expectations* (Christopher et al., 1993); and *the customer's impression of the relative inferiority/superiority of a service provider and its services* (Bitner and Hubert, 1994). For the present study, *administrative service quality has been defined as an attitude resulting from faculty perceptions of administrative service performance.*

Positive correlations between customer satisfaction and retention, loyalty and WOM have been reported in a number of studies (Anderson and Sullivan, 1993; Chumpitaz and Paparoidamis, 2004; Fornell, 1992; Mittal and Kamakura, 2001; Parasuraman et al., 1988; Reichheld and Sasser, 1990). The role of service quality is, thus, widely recognized as being a critical determinant for the success of an organization in today's competitive environment. Any decline in customer satisfaction due to poor service quality would be a matter of concern. Consumers being more aware of rising standards in service, prompted by competitive trends, have developed higher expectations. In order to acquire and retain skilled academic staffs (front-line), an educational institution needs to satisfy its academic staff. Measuring the quality of their internal services using appropriate model adapted to their context is therefore an important task.

REVIEW OF RELATED LITERATURE

INTERNAL MARKETING

Researchers considered the empirical research conducted so far on internal marketing, especially in developing countries, has been embryonic and descriptive (Varey, 1995; Wilson, 1995). In the early 1980s, the concept of internal marketing first emerged in service marketing literature (Berry, 1981; Gronroos, 1978, 1981, 1985), and was later adopted by the service management literature (Carlzon, 1987; Normann, 1984), and industrial and relationship marketing (Gronroos, 1985; Gummesson, 1987). Heskett (1987) observed that this shift towards internal marketing was because high-performing service companies had gained their status in large measure by turning the strategic service vision inward, i.e., treating their employees as customers.

Internal marketing literature suggested the way to satisfied external customers is through satisfied employees (Gronroos, 1981, 1985; Heskett et al., 1994). Oakland (1993) described the ability to meet customer requirements is vital, not only between two separate organizations, but also within the same organization. The level of satisfaction customers will experience with the firm would be enhanced by understanding and responding to the needs and concerns of the employees (Bitner et al., 1990; Zeithaml et al., 1988). This has been theoretically put forward through the service-profit chain by Heskett et al. (1994). The crucial question to be answered is "how does an organization go about ensuring that its internal customers (such as the academic staff for higher learning institution) receive service quality?"

Scandinavian Airline System (SAS) implemented the first classical documented example of an internal marketing strategy. Jan Carlzon, president of SAS, coined the phrase "moments of truth", believing in empowering his front-line people to take the necessary action to satisfy external customers at the organization-customer interface. He implemented a decentralized decision-making system that flattened the organizational structure, to the point where traditional corporation hierarchical tiers were eliminated; thereby facilitating quick and direct response to customer needs (Carlzon, 1987).

Albrecht and Zemke (1985) opined the front-line contact employees are the ones capable of making or breaking the customer's perception of service quality at the moment of truth. They are important elements in the service delivery process, thus ensuring customer satisfaction (George, 1977; Lehtinen and Lehtinen, 1982). Gronroos (1981) has argued internal marketing should create an internal environment that supports customer-consciousness among the service personnel. This can only be achieved if front-line people are treated the same way as external customers are. It is the job of the administrative staff (support staff) to support and help the academic staff (front-line staff) in their mission to please the students (external customer).

In any service institution, an appreciation of good service orientation is extremely important (Bowen and Schneider, 1988; George and Gronroos, 1991; Schneider, 1980, 1986). Service-oriented culture involves service related behavior, attitudes, judgment, decisions and actions (Wasmer and Bruner, 1991). Internal marketing is a means of developing and maintaining such a service-oriented culture (Gronroos, 1989). In a constantly changing environment, a distinct service-oriented culture is needed that tells employees how to respond to new, unforeseen and even awkward situations (Schneider, 1986; Carlzon, 1987). The culture within the organization has a vital impact on how service-oriented its employees are and how well they act as internal marketers of the organization (Bowen and Schneider, 1988; Christopher et al., 1993). Internal service quality is thus necessary to superior external service quality (Varey, 1995). Service providers need to understand these discrepancies so that they are in a better position to understand, influence direct and, improve human resources in running service operations (Chang et al., 1996; Gronroos, 1981).

SERVICE QUALITY, SATISFACTION, AND LOYALTY

Services are designed to satisfy one's requirements. Service satisfaction is, thus, customers' evaluation of a service in terms of whether that product or service has met their needs and expectations. Failure to meet needs and expectations is assumed to result in service dissatisfaction. Due attention is required to internal customer satisfaction because the continuity of any competitive organization relies on its customer satisfaction. For example, retention of qualified academic staff may depend on the perceived quality of the administrative services.



Source: Adapted from Zeithaml and Bitner (2003)

Heskett et al. (1997) has discovered increasing levels of customer satisfaction could be linked to customer loyalty and profits, as presented in the diagram above. This relationship is strong when customers are very satisfied, where their perceived quality is greater than their expectation (Customer Satisfaction = Perception – Expectation).

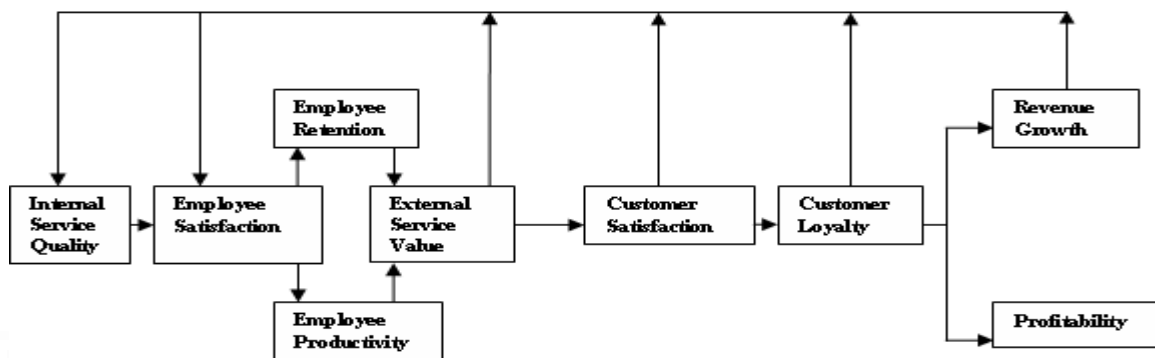
There is more widely accepted relationship between employee satisfaction and employee turnover. Models of employee turnover almost universally propose a negative relationship between satisfaction and turnover (Hom and Griffeth, 1991; Hulin et al., 1985; March and Simon, 1958; Mobley et al., 1979; Price and Mueller, 1986; Rusbult and Farrell, 1983).

Increasing employee satisfaction and thereby reducing employee turnover is critical. Estimates suggested that separation, replacement and training costs are 1.5 to 2.5 times annual salary for each person who quits (Solomon, 1988). This illustrates the value of retaining loyal employees. Long-tenured employees develop personal relationships with customers. These relationships are the foundation for a reinforcing cycle of positive interactions between employees and customers (Reichheld, 1993; Reichheld and Sasser, 1990; Schlesinger and Heskett, 1991). The retention of employees who develop continuing positive interactions with customers will become even more critical in the future. Employees with valuable work skills are becoming too scarce.

Ones organization people, those who are front-line employees and those supporting them from behind the scenes (back-stage), are critical to the success of any service organization because they are the service, the organization in the customer’s eye, and they are also marketers (Zeithaml and Bitner, 2000). Service employees play an important role in creating satisfied customers and in building customer relationships.

There is also concrete evidence that satisfied employees make for satisfied customers and in-turn satisfied customers could reinforce employees’ sense of satisfaction in their jobs. Burke et al. (2005) stated that their study indicated positive and statistically significant relationships between employee satisfaction and customer satisfaction. Schneider and Bowen (1993) seconded both a climate for service and a climate for employee’s well being is highly correlated with overall customer perceptions of service quality. Heskett et al. (1994), Loveman (1998) and Rucci et al. (1998) have also underlined employee satisfaction and customer satisfaction are interrelated and feed each other as demonstrated in the following diagram.

FIGURE 2: THE SERVICE PROFIT CHAIN



Source: Adapted from Davis and Heineke (2003)

Appropriate logistics of administrative services (the service package) is critical for the faculty to undertake satisfactory teaching, consultancy and research services that are the core missions of a given tertiary educational institution. An increase in administrative service satisfaction among the institutions of higher learning academic staff (front-line employees) will undoubtedly have a carry over effect on students’ academic staff service satisfaction.

THE SERVQUAL MODEL AND INTERNAL SERVICE QUALITY MEASUREMENT

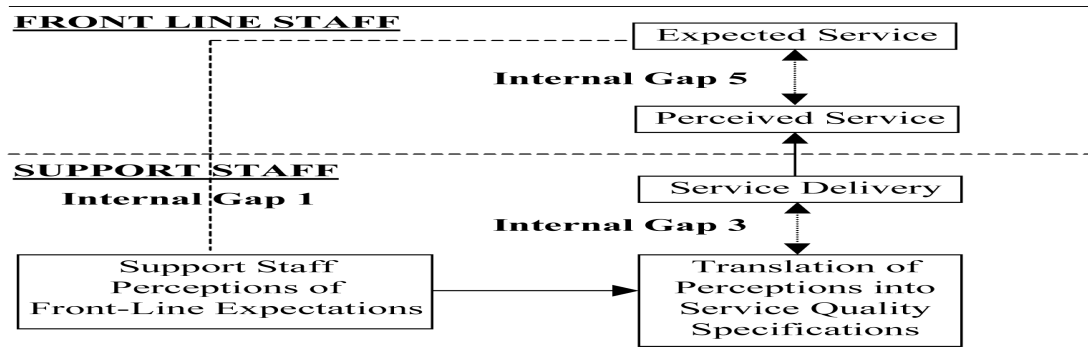
SERVQUAL instrument is extensively used to assess external customer service quality. The instrument can also be adopted to assess the quality of the internal customer service provided, for example administrative staff service provided to the academic staff.

The five dimensions to explain the service quality measure are similar to those used in Parasuraman et al. (1991). The five dimensions with their definitions are listed below (Parasuraman et al., 1988, 1991; Zeithaml et al., 1990).

Dimension	Definition
Tangibles:	Appearance of physical facilities, equipment, personnel, and communication materials
Reliability:	Ability to perform the promised service dependably and accurately
Responsiveness:	Willingness to help (internal) customers and provide prompt service
Assurance:	Knowledge and courtesy of employees and their ability to convey trust and confidence
Empathy:	Caring, individualized attention the employees provide to each other

In Parasuraman et al.'s Gap Model, gap 5 is the main gap, where customers' expectations of a service provided is compared with their perception of that service. In this study, the gap focuses on the front-line staff (internal customers). The gap is based on the difference between front-line staff's expectations and perceptions of support staff's (internal supplier) service quality. Internal gap 3 is the significant difference between service quality specifications and the service actually delivered resulting in an internal service performance gap as can be seen in the following internal service quality model.

FIGURE 3: INTERNAL SERVICE PERFORMANCE GAP



Source: Adapted from Frost and Kumar (2000)

There is merit in evaluating the performance of administrative staff with a service-marketing instrument such as SERVQUAL. This gap model has clear implications for the measurement of service quality, implying both expectations and perceptions need to be explicitly measured in order to quantify service quality gaps (Wisniewski, 2001). It is argued that service institutions could use the SERVQUAL, with appropriate adaptation, to measure the quality of services provided to employees (Chaston, 1994; Edvardsson et al., 1997; Frost and Kumar, 2000; Kang et al., 2002; Young and Varble, 1997; Zeithaml et al., 1990). Hence, this study employed an internal service quality model- INTSERVQUAL. It is an adaptation of the Gap Model (Parasuraman et al., 1985, 1988, 1991) and the SERVQUAL measuring instruments. Its model construct encompasses the five-dimension structure, i.e., tangibles, reliability, responsiveness, assurance, and empathy, adapted to higher learning institution. The service quality and service satisfaction is conceptualized and operationalized as follows based on the related literature discussed above:

Service Quality = f (Tangibles, Reliability, Responsiveness, Assurance and Empathy)

$$S = \alpha + \beta_1 (T) + \beta_2 (RI) + \beta_3 (Rs) + \beta_4 (A) + \beta_5 (E) + e_t \quad (1)$$

Where, S = overall satisfaction

α = Constant; β_i = Coefficient of the dimensions of quality

T = Tangible; RI = Reliability; Rs = Responsiveness; A = Assurance;

E = Empathy; e_t = Error term

Service Satisfaction = f (Perception (P) – Expectation (E))

$$S = \sum_{j=1}^k (P_{ij} - E_{ij}) \quad (2)$$

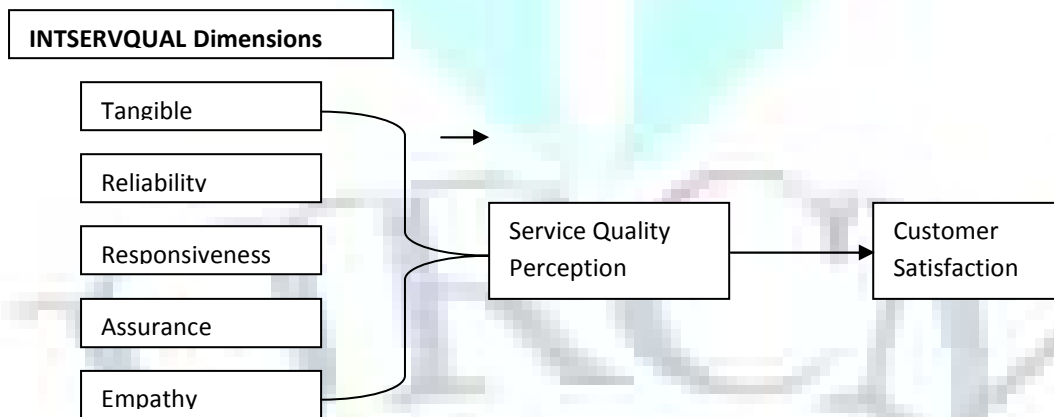
Where, S = Overall service satisfaction; k= number of attributes.

P_{ij} = Performance perception of stimulus i with respect to attribute j.

E_{ij} = Service quality expectation for attribute j that is the relevant norm for stimulus i.

$P > E$ = Satisfaction; $P < E$ = Dissatisfaction; and $P = E$, neither satisfaction nor dissatisfaction.

FIGURE 4: INTSERVQUAL AND SATISFACTION MODEL



Source: Adapted from Kang and James (2004)

RATIONAL FOR THE STUDY AND METHODOLOGY

RATIONAL FOR THE STUDY

The institutions of higher learning in Ethiopia do not have a system for assessing academic staff's (front-line) perceptions on administrative services (support staff). It is important to introduce effective system of periodic assessment of the front-line staff service perceptions on their support staff's service performance so that to know their level of administrative service satisfaction, propensity to recommend (word-of-mouth) and switching intention (loyalty) in order to take purposeful service measures.

The reasons for undertaking this exploratory research included:

1. Employees them selves are customers of internal services.
2. Absence of formal evaluation of administrative staff's service by the academic staff.
3. Commitment and passion to the inevitable environmental change on the part of the support staff will contribute a lot to the very interest of the institution when the INTSERVQUAL model is introduced.

4. Analyzing academic staff's service gap may enhance accountability of the administrative staff and in return enhance the service quality of the academic staff to students.
5. Research on internal customer's service perception serves as an early word of warning to service delivery system because employees are able to identify when the system is derailing.

Finally, it is the ignorance of the academic staff as customer as well as lack of systematic assessment of academic staff's perception on administrative services led to the problem statement called "**Academic Staff's Perception of Administrative Staff Services**".

RESEARCH OBJECTIVES

The purpose of this study was to explore how the administrative service quality being provided by the Adi-Haqi Campus was perceived by the academic staff. It has been undergone in view of the following specific objectives:

1. To assess current level of perceived service quality gap; the gap between service expectations and perceptions,
2. To identify the major predictors of administrative service quality,
3. To assess the effects of service satisfaction on propensity to recommend and switching intentions and
4. To forward recommendations, on the basis of the study, which helps improve the administrative service quality.

RESEARCH HYPOTHESIS

The following research hypotheses were formulated to get done the aforementioned research objectives:

- Ho1: There are no significant mean difference between the academic staff's administrative service expectations and perceptions.
 Ho2: The administrative service quality dimensions are not significant predictors of the academic staff's overall administrative service satisfaction.
 Ho3: There is no significant impact of the academic staff's overall service satisfaction on their propensity to recommend.
 Ho4: There is no significant impact of the academic staff's overall service satisfaction on their switching intention.

RESEARCH METHODOLOGY

This study aimed at exploring the Adi-Haqi Campus academic staff's service perceptions, expectations, and satisfaction on campus administrative staff services. It was a quantitative research employing the INTSERVQUAL model. The questionnaire instrument was an adaptation of the Parasuraman et al.'s (1988, 1991) five service quality dimensions that were initially designed to assess organizations and businesses in the service sector. These survey questions were customized to explore the academic staff's service expectations and perceptions on administrative services.

Both primary and secondary data were collected. The primary data was collected through questionnaire adapted from the SERVQUAL survey questions in order to identify the service gap between service perceptions and expectations. All survey questions were positively worded based on previous research that found no advantage in including a mix of positively and negatively worded items (Parasuraman et al., 1991). On the other hand, secondary data was collected from books, articles, journals, and Internet to enrich and critically analyze the subject under study.

Academic staff that was on duty during the II -semester of the 2009/10 academic year was targeted; 81 out of 103 academic staff were sampled; and 74 (out of 81sample) academic staff were responding. Multiple-stage stratified random sampling was employed where a sample of members from each stratum were drawn using systematic random sampling procedure. Judicious mixes of gender and faculty were considered. Payroll sheet was used as a population frame. Krejcie and Morgan (1970) had greatly simplified sample size decisions by providing a table that ensures a good decision model. This table was consulted in determining adequate sample size.

Data obtained through questionnaire was appropriately edited, coded, categorized and entered in to an SPSS program for statistical applications (descriptive as well as inferential), wherever appropriate. The three data analysis objectives were met through:

Getting a feel for the data: using frequency distribution.

Testing goodness of data: using the reliability analysis [Cronbach's alpha] and validity analysis [factor load] and

Testing of hypothesis: using inferential statistics such as paired-samples T-Test, Pearson's correlation, and multiple regressions that are valid for the particular hypothesis.

SIGNIFICANCE OF THE STUDY

The study will benefit the university, students and staff, potential researchers in this area and the nation at large.

1. The institutions of higher learning will benefit from the research findings in terms of (a) coping up with their academic staff's service perceptions, (b) adapting to the changing national and global academic environment and (c) educating their academic staff to have a reasonable level of service expectations through continuous service quality assessment.
2. The academic staff will benefit in terms of getting improved future administrative services.
3. The students will benefit in terms of getting improved future academic services.
4. The potential researchers will have an additional data warehouse in the domain of the institutions of higher learning's internal service quality assessment.
5. The nation at large (including the government, parents, and employers) will benefit in terms of having a qualified academic staff that are skilled, knowledgeable, motivated, creative, innovative and ethical.
6. Finally, it contributes to the literature on internal service quality assessment, especially from the developing countries.

SCOPE AND LIMITATION

This study was addressing only the Adi-Haqi Campus academic staff's that were on duty during the II – semester of the 2009/10 academic year in the College of Business and Economics (CBE) and College of Law and Governance (CoLG). The data on academic staff service perceptions and expectations was filled at the same time than at different intervals due to the time constraint. The research findings can give comprehensive picture about the campus academic staff service perceptions and may provide a glimpse of the Mekelle University's internal service quality level. Future research could be conducted by (1) including the academic staff of all the faculties and colleges and (2) collecting data at reasonable intervals (first about the faculties' expectations and later about their perceptions on the same sample respondents).

RESULTS AND ANALYSIS

The survey instrument was designed on INTSERVQUAL model (an internal adaptation of the Gap model and the SERVQUAL instrument) which measures perceived service quality by calculating the direction and discrepancy between the academic staff service perceptions and expectations across the 22 items using a seven-point Likert scale. The 22 items were customized from Parasuraman et al. (1988) to measure service perceptions of the academic staff on administrative services. Moreover, the academic staff was asked to evaluate the overall quality of services provided by the administrative staff, their level of propensity to recommend and their level of loyalty to continue working in the Campus.

INTSERVQUAL survey questionnaire was distributed to 81 academic staff sampled from 103 academic staff that was on duty during the II semester of the 2009/10 academic year. Questionnaires were administered during the third and fourth week of May 2010. Academic staff was given verbal and written instructions on how to fill the questionnaire as well as a brief explanation on its content and objective.

CHARACTERISTICS OF THE SAMPLE RESPONDENTS

Frequency distribution was used to "getting a feel for the data", i.e., to describe sample characteristics. Of the 81 questionnaires distributed, 74 were returned completed, representing a response rate of about 91.36%. Subsequently, characteristics of the sample respondents are demonstrated based on the demographic variables (i.e., age, gender, education, work experience and Faculty).

Table 1 below reveals 74.3% of the respondents were aged between 21-30 years while 17.6% were in the 31-40 ages; and only 8.1% of the respondents were aged between 41- 50 years. No respondent aged above 50 years. The response rate was 29.79% for females and 70.3% for males; 56.8% of the respondents were undergraduates while 40.5% were post-graduates; and only 2.7% of the respondents were PhD holders; 9.5% of the respondents had less than one year

work experience, 39.2% of them 1-2 years, 14.9% 2-4 years, and 36.5% of them had above four years work experience; and 78.4% of the respondents were from CBE and 21.6% from CoLG.

TABLE 1: CHARACTERISTICS OF SAMPLE RESPONDENTS

	Frequency	Percent (%)	Valid Percent (%)	Cumulative Percent (%)
Age				
21-30	55	74.3	74.3	74.3
31-40	13	17.6	17.6	91.9
41-50	6	8.1	8.1	100.0
Total	74	100.0	100.0	
Gender				
Female	22	29.7	29.7	29.7
Male	52	70.3	70.3	100.0
Total	74	100.0	100.0	
Education				
Undergraduate	42	56.8	56.8	56.8
Post-graduate	30	40.5	40.5	97.3
PhD	2	2.7	2.7	100.0
Total	74	100.0	100.0	
Work Experience				
<1year	7	9.5	9.5	9.5
1-2years	29	39.2	39.2	48.6
2-4years	11	14.9	14.9	63.5
>4years	27	36.5	36.5	100.0
Total	74	100.0	100.0	
Faculty				
CBE	58	78.4	78.4	78.4
CoLG	16	21.6	21.6	100.0
Total	74	100.0	100.0	

VALIDITY AND RELIABILITY FACTOR AND RELIABILITY ANALYSIS

TABLE 2: KMO AND BARTLETT'S TEST

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.836
Bartlett's Test of Sphericity	Approx. Chi-Square	888.274
	df	231
	Sig.	.000

The 0.836 coefficient of KMO indicates adequacy of the sample size for factor analysis, besides this measure suggests that the correlation matrix is appropriate for factor analysis ($KMO > 0.813$); and the Bartlett's Test of Sphericity was significant at $p < 0.01$ which shows the appropriateness for factor analysis. The KMO for the construct exceeded 0.60, i.e., the threshold recommended by Kaiser and Rice (1974) and Sharma (1996); and the factors are high loaded, ≥ 0.40 , (Hair et al., 1998).

The factor loads (Table 3) indicate the items in the quality model were fit to measure the academic staff's administrative service perceptions. According to the item-to-total-correlation, Q1P, Q2P, Q3P, Q4P, Q12P, Q14P and Q15P are candidates for exclusion for their correlation coefficient is < 0.50 (Blaikie, 2003). On the other hand these items are satisfying the minimum factor load requirement (≥ 0.40). The reliability test also indicates that the 0.9259 alpha coefficients for all items would not be increased by the removal of these items, except for Q3P, Q4P and Q14P. The 0.9259 alpha for all items and the 0.8887 alpha for all dimensions reveal strong internal consistency; it exceeds 0.70, i.e., the threshold recommended by Nunnally (1978).

Therefore, all the quality items and dimensions above are maintained, although the lower factor load (< 0.4) and the lower item-to-total correlation coefficient values (< 0.50) show some items didn't fit as good as the others. Therefore, the factor analysis as well as the reliability tests proved that (a) the sample size was adequate, (b) the factors were loaded high, (c) there was strong correlation among the variables and (d) there was strong internal consistency among the constructs. This indicated that the variables in the quality model were fit to measure the academic staff's administrative service perceptions and thus hypothesis testing can be carried on.

TABLE 3: COMMUNALITIES AND RELIABILITY ANALYSIS-CRONBACH'S ALPHA

Service Quality Items and Dimensions		Item-Total Correlation	Factor Load	Alpha If Item Deleted
Tangible		0.5722	.492	0.8968
Q1P	Administrative staff is neat appearing.	0.4109	.619	0.9254
Q2P	Materials associated with the services of administrative staff (such as notices, letter, information bulletin, legislations, and working manuals and guidelines, request forms, etc) are neat, visually appealing and easy to understand.	0.4550	.678	0.9251
Q3P	Administrative staff has up to date working manuals and guidelines.	0.2863	.659	0.9275
Q4P	Physical facilities being used by administrative staff (such as office building, office equipment, office furniture and fixture, notice board, cars, toilet, uniform, etc) are neat and visually appealing.	0.3646	.549	0.9262
Reliability		0.8121	.786	.8452
Q5P	Administrative staff provides problem solving (i.e., effective and efficient) services or tell accurately where to find them.	0.6059	.790	0.9223
Q6P	Administrative staff provides error-free information or tell accurately where to find them.	0.7093	.806	0.9200
Q7P	Administrative staff provides dependable, correct, and supportive services or tell accurately where to find them.	0.7432	.746	0.9196
Q8P	Administrative staff provides their services 'right the first time' (i.e., provide zero-defect services).	0.7150	.773	0.9201
Q9P	Administrative staff provides their services at the time they promise to do so.	0.6121	.739	0.9220
Responsiveness		0.7535	.715	0.8591
Q10P	Administrative staff provides prompt/timely services.	0.5999	.669	0.9223
Q11P	Administrative staff is willing to help the academic staff.	0.5716	.745	0.9228
Q12P	Administrative staff does not appear aloof/distant or too busy to respond to academic staff's requests.	0.4940	.603	0.9244
Q13P	Administrative staff tells exactly what and when services will be performed.	0.6791	.596	0.9209
Assurance		0.7228	.684	0.8680
Q14P	Administrative staff instills/inspires confidence (by providing dependable, error-free, courteous, and prompt services).	0.3825	.611	0.9260
Q15P	Administrative staff provides consistently courteous/polite attention with prompt follow-up to administrative queries/requests.	0.4945	.490	0.9241
Q16P	Administrative staff has the knowledge to answer academic staffs' queries.	0.6536	.728	0.9216
Q17P	Administrative staff makes academic staff's feel safe, secure, and comfortable in their administrative transactions.	0.5875	.773	0.9226
Empathy		0.8144	.797	0.8442
Q18P	Administrative staff provides individual/personal attention (in a caring and understanding way) to the specific administrative queries.	0.7634	.721	0.9190
Q19P	Administrative staff makes academic staff's feel that they care about "doing a good job" and have sympathy with academic staff.	0.6640	.587	0.9211
Q20P	Administrative staff is always available during office hours for administrative queries.	0.5704	.721	0.9228
Q21P	Administrative staff has academic staff's best interest at heart (i.e., have positive service attitude towards the academic staff).	0.7009	.782	0.9204
Q22P	Administrative staff understands the difficulties facing the academic staff.	0.6393	.782	0.9215

Extraction Method: Principal Component Analysis.

Alpha for all items = .9259; N of Cases = 74; N of Items = 22

Alpha for all dimensions = .8887; N of Cases = 74; N of Items = 5

Where Q1P = perception of quality statement number 1

HYPOTHESES TESTING

Ho1: There are no significant mean differences between the academic staff's administrative service expectations and perceptions.

TABLE 4: MEAN DIFFERENCE BETWEEN EXPECTATIONS AND PERCEPTIONS

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Q1E - Q1P	.97	1.596	.186	.60	1.34	5.244	73	.000
Pair 2	Q2E - Q2P	1.78	2.056	.239	1.31	2.26	7.464	73	.000
Pair 3	Q3E - Q3P	1.20	1.744	.203	.80	1.61	5.933	73	.000
Pair 4	Q4E - Q4P	.93	1.707	.198	.54	1.33	4.699	73	.000
Pair 5	Q5E - Q5P	2.22	2.313	.269	1.68	2.75	8.242	73	.000
Pair 6	Q6E - Q6P	2.09	2.114	.246	1.60	2.58	8.522	73	.000
Pair 7	Q7E - Q7P	1.85	1.892	.220	1.41	2.29	8.417	73	.000
Pair 8	Q8E - Q8P	2.07	1.940	.225	1.62	2.52	9.169	73	.000
Pair 9	Q9E - Q9P	1.84	1.986	.231	1.38	2.30	7.959	73	.000
Pair 10	Q10E - Q10P	2.20	2.054	.239	1.73	2.68	9.225	73	.000
Pair 11	Q11E - Q11P	1.73	2.043	.237	1.26	2.20	7.284	73	.000
Pair 12	Q12E - Q12P	1.76	2.086	.242	1.27	2.24	7.245	73	.000
Pair 13	Q13E - Q13P	1.92	1.849	.215	1.49	2.35	8.929	73	.000
Pair 14	Q14E - Q14P	2.32	1.814	.211	1.90	2.74	11.022	73	.000
Pair 15	Q15E - Q15P	1.99	1.817	.211	1.57	2.41	9.405	73	.000
Pair 16	Q16E - Q16P	1.49	1.657	.193	1.10	1.87	7.716	73	.000
Pair 17	Q17E - Q17P	1.64	1.733	.201	1.23	2.04	8.118	73	.000
Pair 18	Q18E - Q18P	1.95	2.080	.242	1.46	2.43	8.048	73	.000
Pair 19	Q19E - Q19P	2.24	1.943	.226	1.79	2.69	9.931	73	.000
Pair 20	Q20E - Q20P	1.99	2.003	.233	1.52	2.45	8.530	73	.000
Pair 21	Q21E - Q21P	2.20	1.951	.227	1.75	2.65	9.711	73	.000
Pair 22	Q22E - Q22P	2.05	2.073	.241	1.57	2.53	8.523	73	.000

Mean of academic staff's overall administrative service satisfaction is 4.31 on a 7-rating scale.

The paired-samples t-test indicates a significant difference on each paired test between the academic staff's service expectations and perceptions. The significance test also demonstrates a statistically significant difference at 95% confidence interval for difference of means of paired statements at P<0.05. It means the difference occurred between the expectations and perceptions were greater than would be expected by chance.

The **hypothesis is rejected** because the paired-samples t-test result disclosed the presence of significant difference between the academic staff's administrative service expectations and perceptions at p<0.05. For each statement in the service quality dimension, the perceived service quality was found to be significantly below the expected service quality.

Ho2: The service quality dimensions are not significant predictors of the academic staff's overall administrative service satisfaction.

$$S = \alpha + \beta_1 (T) + \beta_2 (RI) + \beta_3 (Rs) + \beta_4 (A) + \beta_5 (E) + e_t$$

Where, S = overall satisfaction; α = Constant; β_i = Coefficient of the dimensions of quality; T = Tangible; RI = Reliability; Rs = Responsiveness; A = Assurance; E = Empathy; e_t = Error term

TABLE 5: FITNESS OF MODEL

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.658(a)	.433	.392	1.024

^a Predictors: (Constant), TANGIBLE, RELIABILITY, RESPONSIVENESS, ASSURANCE, EMPATHY

^b Dependent Variable: OS, where, OS = Overall Satisfaction.

The multiple correlation coefficients (R) large value (0.658) indicates a strong relationship among the five service quality dimensions and the academic staff's perceived overall service satisfaction and the coefficient of determination (R Square) 0.433 shows about half of the variation in the academic staff's perceived overall satisfaction was explained by the model. The **hypothesis is rejected** because the service quality dimensions were the predictors of the academic staff's overall administrative staff service satisfaction.

TABLE 6: SIGNIFICANCE OF SERVICE DIMENSIONS

Model		Standardized Coefficients	Collinearity Statistics			t	Sig.	Correlations		
			Tolerance	VIF	Condition Index (CI)			Zero-order	Partial	Part
1	(Constant)	Beta			1.000	1.043	.301			
	TANGIBLE	.130	.637	1.569	9.283	1.134	.261	.465	.136	.104
	RELIABILITY	-.092	.314	3.184	13.008	-.567	.572	.490	-.069	-.052
	RESPONSIVENESS	.230	.314	3.184	16.508	1.414	.162	.554	.169	.129
	ASSURANCE	.270	.444	2.252	16.745	1.971	.053	.582	.232	.180
	EMPATHY	.228	.340	2.943	18.263	1.454	.151	.587	.174	.133

^a Dependent Variable: OS

The coefficients table above reveals there are many predictors in the model. There are non-significant coefficients at p<0.05; and the value of the tolerance is minimum and the CI for the responsiveness, assurance and empathy dimensions is above 15 indicating the problem of collinearity (Bedi, 2004; Kwan and Ng, 1999). Therefore, the collinearity problem is fixed by using the step-wise linear regression analysis in order to identify only the major predictor variables in the model as follows:

TABLE 7: COLLINEARITY DIAGNOSTICS (c)

Model		Collinearity Statistics		
		Tolerance	VIF	Condition Index (CI)
1	(Constant) ^a			1.000
	EMPATHY	1.000	1.000	6.533
2	(Constant) ^b			1.000
	EMPATHY	.487	2.055	7.850
	ASSURANCE	.487	2.055	11.780

^a Predictors: (Constant), EMPATHY

^b Predictors: (Constant), EMPATHY, ASSURANCE

^c Dependent Variable: OS

The step-wise linear regression analysis chooses empathy and assurance as the two major quality dimensions that were significant predictors of the academic staff's perceived overall administrative service satisfaction. There is no problem with multicollinearity; all of the VIF indices are less than 10, the condition indices (CI) are less than 15 and the tolerances are improved. The model built using stepwise methods did not have problems with collinearity (Bedi, 2004; Kwan and Ng, 1999).

TABLE 8: RANKING OF SERVICE DIMENSIONS

	N	Mean	Rank
R1	74	11.58	5
R2	74	16.50	4
R3	74	16.61	3
R4	74	29.86	1
R5	74	25.45	2
Valid N (list wise)	74		

Where, R1= Tangible, R2= Reliability, R3= Responsiveness, R4=Assurance, and R5= Empathy.

The academic staffs have ranked assurance, empathy, responsiveness, reliability and tangible from first to fifth, respectively, in terms of their degree of importance. Thus, assurance is ranked as the most important (first) and tangible as the least important dimension (fifth).

Ho3: There is no significant impact of the academic staff's overall service satisfaction on their propensity to recommend the Adi-Haqi Campus to others.

TABLE 9: ACADEMIC STAFF'S WORD OF MOUTH (WOM)

		OS	WOM
OS	Pearson Correlation	1	.743(**)
	Sig. (2-tailed)	.	.000
	N	74	74

** Correlation is significant at the 0.01 level (2-tailed).

Where, OS = Overall Satisfaction; WOM = Word of Mouth

The Pearson's correlations coefficient (0.743) shows the overall satisfaction had significant positive impact on the academic staff's propensity to recommend the Adi-Haqi Campus to others at $p < 0.01$. Thus, **the hypothesis is rejected**.

Ho4: There is no significant impact of the academic staff's overall service satisfaction on their switching intention from the Adi-Haqi Campus.

TABLE 10: ACADEMIC STAFF'S SWITCHING INTENTION

		OS	LOYALT
OS	Pearson Correlation	1	.692(**)
	Sig. (2-tailed)	.	.000
	N	74	74

** Correlation is significant at the 0.01 level (2-tailed).

Where, LOYALT = Loyalty

The Pearson's correlations coefficient (0.692) demonstrates the overall satisfaction had significant positive impact on the academic staff's switching intention from the Adi-Haqi Campus to others at $p < 0.01$. Thus, **the hypothesis is rejected**.

CONCLUSIONS AND RECOMMENDATIONS

The test of goodness of data (the correlation, reliability, and factor analysis) demonstrated that the data collected were reliable and valid: (1) the Pearson's correlation coefficient showed significant correlation among the INTSERVQUAL quality dimensions, (2) the reliability levels (Cronbach's alpha) of the model all exceeded 0.70 (Nunnally, 1978) and (3) the factor analysis revealed the amount of variance captured by the model demonstrated high validity; except few, almost all of the items assigned to each quality dimension had high factor loadings (i.e., > 0.50). Thus, the internal service quality instrument can be successfully used to assess the magnitude of the gap between the academic staff's administrative service expectations and perceptions.

The paired-samples t-test demonstrated the academic staff's administrative service perceptions significantly fell below expectations. Its significant mean differences between service expectations and perceptions meant the academic staff did not get the expected services. The mean differences between their service expectations and perceptions ranged from 0.93 to 2.32.

There was significant positive relationship between the service quality dimensions and the academic staff's overall service satisfaction. It means these quality dimensions had significant impact on perception of the overall administrative service satisfaction. The model was also fit to measure academic staff's administrative service satisfaction level. The study also showed significant positive relationship between the academic staff's overall service satisfaction and their propensity to recommend and their switching intention. It means improving academic staff's overall administrative services leads to positive word of mouth and loyalty.

While many service quality dimensions may influence an academic staff's perception of internal service quality (administrative service), the study indicated some dimensions have a greater impact on the overall perception of the administrative service quality. The step-wise linear regression analysis (Multiple Regression Analysis) identified assurance (knowledge and courtesy of the administrative staff and their ability to convey trust and confidence.) and empathy (caring and individualized/personal attention of the administrative staff to the academic staff.) dimensions as the most predictors of the academic staff's overall administrative service satisfaction, i.e., the assurance and empathy dimensions significantly influenced their overall administrative service quality perception.

Ranking of the five quality dimensions (tangible, reliability, responsiveness, assurance, and empathy) pointed out assurance as the first and tangible as the fifth important in measuring administrative service quality. The implication of these finding is that the academic staff perceived some quality aspects to be more important than others for determining the quality of the service that they received from the administrative staff (the internal service providers). The finding does not mean, however, that the administrative service providers should neglect other quality dimensions (e.g. tangible, reliability, and responsiveness). It is important for the administrative staff to provide adequate service on all dimensions, and then to ascertain which dimensions may require greater attention for a period of time by means of continuous service assessment.

These results are consistent with prior research findings that (1) the paired-samples t-test revealed that academic staff expected more than what they perceived the administrative staff would provide, (2) tangible was less important in assessing academic staff's service perceptions and did not influence the academic staff service satisfaction as good as the rest, and (3) assurance and empathy were pointed out as the most predictors of administrative services (Chua, 2004; Darlaston-Jones et al., 2003; Faganel and Macur, 2003/04; Pariseau and McDaniel, 1997; Sherry et al., 2004; Soutar and McNeil, 1996). On the contrary, this too did not concur with the findings of Parasuraman et al. (1988, 1991), Frost and Kumar (2000) and Kang et al. (2002) whose research found reliability, responsiveness, and reliability and responsiveness, respectively, to have the most significant influence of all the service quality dimensions on the overall perception of service quality.

The importance of these findings for managerial decision-making process is evident. Knowing how academic staff perceives the administrative service quality and being able to measure internal service quality can benefit the institutions of higher learning managers both in quantitative and qualitative terms. The measurement of internal service quality can provide specific data that can be used in quality management. Assessing internal service quality and better

understanding on how various dimensions impact the overall service quality would enable them to efficiently design the service delivery process. By identifying the service perception gap, they can better allocate internal resources to provide better internal service for their academic staff and ultimately better service to their students.

The longitudinal use (periodic assessment) of such quality assessment will help them to take necessary measures for continuous service improvements. They have to recognize assurance and empathy dimensions are significant determinants to the academic staff's overall internal service quality perceptions. Therefore, the support staff should provide courteous and knowledgeable services to the academic staff and demonstrate caring and personal/individual attention to the academic staff (front-line employees).

The managers also must have a checklist of best practices with regard to service assurance and empathy, and to monitor whether such practices are implemented. With the knowledge of the internal service quality dimensions, the institutions of higher learning managers can then judge how well their administrative employees performed on each dimension and could identify the gap in order to make improvements.

The study was a snap shot of the Adi-Haqi Campus administrative staff's service performance at a distinct time, i.e., II-semester of the 2009/10. Review of various service quality models revealed that the service quality outcome and measurement is dependent on the type of service setting, situation, time, need, etc factors. In addition to this even the customer's expectations towards particular services is also changing with respect to factors like time, increase in the number of encounters with a particular service, competitive environment, etc. Thus, it is recommended that the study be repeated from time to time for continuous service improvement through cooperative venture between the academic and administrative staff. Such synergetic attempt will help to identify necessary logistics, training, and empowerment needed by the administrative staff for offering satisfactory internal services.

Finally, conclusions are drawn about academic staff's perceptions of administrative staff services in the CBE and CoLG. Generalization to other colleges or the university as a whole may not be legitimate. Thus, an all-inclusive research is suggested to measure how the Mekelle University's academic staff perceives the administrative services.

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XBRL, THE 21ST CENTURY DATA SOURCE AND DATABASE LEVEL DATA VALIDATION**FABOYEDE, S.O****LECTURER****DEPARTMENT OF ACCOUNTING****COVENANT UNIVERSITY****NIGERIA****DR. MUKORO, D.****LECTURER****DEPARTMENT OF ACCOUNTING****COVENANT UNIVERSITY****NIGERIA****OLWE, O.****LECTURER****DEPARTMENT OF BANKING AND FINANCE****COVENANT UNIVERSITY****NIGERIA****ABSTRACT**

In the present dynamic business environment of corporate governance and regulations, financial reporting is an inevitable and extremely significant process for every business enterprise. In the current state of information access, information is provided in many different proprietary data formats, making it difficult to access, integrate and analyze this information in a timely, complete and accurate manner. Using the secondary data methodology, this paper presents the implications of the eXtensible Business Reporting Language (XBRL) which is becoming the digital and transparent method of presenting the financial statistics of businesses worldwide. XBRL addresses business reporting information on internet and bases on eXtensible Mark-Up Language (XML), which is a standard for electronic data exchange on internet. The paper finds that as XBRL becomes the norm for financial reports, automated validation will be increasingly important not only for the success of the system, but for peace of mind for investors/users and preparers of information. As a result of the fact that accounting industry is in the midst of a technological tsunami in which antiquated closed, proprietary financial reporting systems are being challenged by more cost effective, XBRL-based systems, the paper recommends, amongst others, that regulatory bodies, corporate organizations, software companies, the government, professional bodies, and educational institutions, should immediately set in motion activities that will culminate into a full embrace of the XBRL digital reporting technology in order to take advantage of this historic revolutionary development.

KEYWORDS

Financial Reporting, Global Standard, Information, Interactive Data, XBRL.

INTRODUCTION

In the present dynamic business environment of corporate governance and regulations, financial reporting is an inevitable and extremely significant process for every business enterprise. Several financial elements such as Annual Reports, Quarterly Reports, ad-hoc filing, and other statutory/regulatory reports provide vital information to the investors and regulators, and establish trust and rapport between the internal and external stakeholders of an organization. Investors today are very demanding, and emphasize greatly on authenticity, accuracy, and reliability of financial data as financial reporting reveals the true financial and overall health of an organization (Chandran, 2010).

A 21st century method of reporting financial data has recently come to realization. This method, referred to as eXtensible Business Reporting Language (XBRL), seeks to provide a common reporting language to businesses which enables the sharing of business statistics. The eXtensible Business Reporting Language (XBRL) data standard is setting its foothold around the world. It is fast moving from the vision phase to a practiced global standard for financial and business reporting information. This is because the XBRL addresses the problem of data integrity, timeliness and reusability. Management and other key stakeholders need access to timely, relevant, and accurate financial and business information. Accuracy is important in any information system if it is to be used effectively and trusted. It is the foundation for usage of a database or a spreadsheet or other medium of information storage and manipulation.

Currently, accountants and others responsible for reporting financial data find themselves mired in developing data financial reporting documents which are usually calculated and derived from a database of economic information about the company. Preparation of these reports can take a preponderance of a finance department's time during the period of reporting. So much time is required to prepare these documents and reports due to the overall reason that contextual information must be provided with this data. Because the information is entered manually, errors can occur rendering the data meaningless.

In the current state of information access, there are multiple problems in making this level of clarity, accuracy and public trust a reality. One of the biggest roadblocks is that this information is provided in many different proprietary data formats, making it difficult to access, integrate and analyze this information in a timely, complete and accurate manner. The internet and electronic communication has ensured that information is more freely available than ever before and that the time it takes to deliver that information has sharply decreased. The key question now is: how reusable is that information? Even when what to look for is exactly known, and where to find it is roughly known, extracting information from financial and business reports today generally involves a frustrating experience and a time-consuming and largely manual effort. The biggest problem is that the format and media on which financial and business reporting data are authored vary widely between paper, html, pdf, and other human readable forms or proprietary electronic formats tied to a specific software application. Each publishing format has its limitations and they can all only be interpreted by manual human processing (Watson and Dhobale, 2010). XBRL seeks to provide a solution to these problems by giving the data meaning, while at the same time providing the capability to enter the data once, and reuse it through XML like tags, and thus reduce errors of transcription.

It is therefore not surprising why XBRL is rapidly becoming the standard of choice globally. Considering the benefits that XBRL provides, many countries worldwide are adopting XBRL in their reporting frameworks. XBRL, because it is a significantly improved language for financial and business reporting, is being rapidly adopted by corporations and regulatory agencies worldwide. It is rapidly becoming the de facto standard for defining, exchanging and storing business information by regulators, stock exchanges, statistical offices, banks, and corporations across the world. Many Governments see this as the panacea for

improving corporate financial transparency, streamlining and standardizing reporting, and have made this method of filing of financial information mandatory (CIMA, n.d.). While several of countries have already mandated XBRL reports, few others have started voluntary XBRL programs. Apart from the regular business reporting, many pilot projects are also being undertaken to assess the potential benefits that XBRL could offer.

This paper attempts the background of XBRL and how it is used for business and information management. It gives an account of the data challenges necessitating the advent of XBRL, applications using XBRL, data validation means for XBRL, the globalization of XBRL, selective major XBRL projects happening around the world, and stakeholder benefits accruing from XBRL. It examines the issue of data accuracy and the importance of data validation to help ensure system accuracy. It demonstrates the necessity of database level validation techniques, in addition to client level validation, in order to ensure security and data accuracy when using Data Base Reporting Language (DBRL) based information systems. This will help ensure consumer trust and thus adoption of the system for common use.

WHAT IS EXTENSIBLE BUSINESS REPORTING LANGUAGE (XBRL)?

XBRL is a type of 21st century computer language that allows financial data to be represented in a way that allows meaning to be attached to pieces of data. XBRL is a set of tags that can be applied to each and every element of data in a financial report. Tags store the context information, what the number represents, the period for which it is reported, the currency, etc. This approach enables users to perform comparison of specific line items. It is based on the concept of Extensible Markup Language (XML) which enables pieces of data to be tagged in such a way that meaning can be inferred from the piece of data standing alone. XBRL is a financial adaptation of XML to fit the needs of accounting information systems (Morris, 2009). It is designed to aid users in their ability to sift through mountains of financial information, by making that information machine readable. This is possible because its interactive nature enables data to be readable by machines, in the XBRL format, and meaning will be attached to the data.

XBRL is to address business reporting information on internet and bases on XML, which is a standard for electronic data exchange on internet. It is a markup language, rather than a programming one. It enables business data and information to be shared and communicated by companies, banks, stock exchanges, accounting institutions, governments and other relating organizations. It is open-standard, free of charge, and developed by an international non-profit consortium known as the XBRL International (Li, 2007). XBRL is about globally connected, real-time reporting organisms cutting through inefficiencies and creating new opportunities. It is universally applicable, digital, interactive and transparent (drills down to the facts). Interactive data allows investors and others to pinpoint facts and figures within today's often lengthy disclosure documents. Using interactive data, an investor can immediately pull out specific information and compare it to information from other companies, performance in past years, and industry averages.

Currently, financial information in a business report depends on contextual information to provide meaning to the financial data reported. This meaning can span pages, requiring auditors to look through documents hundreds of pages long in order to find not only the data they need, but the meaning of that data. This process can be prone to errors, not to mention time constraints when it comes to distilling information across many businesses. By producing a common financial language which combines financial data with context, and making that information useable by information systems, the accounting process can become automated and users can quickly find the information they need without having to sift through volumes of information. Also, with XBRL, financial data can be transferred between countries and the data can be patterned to automatically update to regional settings (Morris, 2009; Willis and Hannon, 2005). XBRL marks the first major initiative to translate complex policy into digital code. It transforms a reporting standard into an internet standard, enabling software to process data automatically using business logic and literally codified policy. It levels the playing fields of the global capital markets so that every company in every industry around the world can get the investor attention it merits.

It is essential to note that XBRL is a freely available, market-driven, open, and global standard for exchanging business information. It allows information modeling and the expression of semantic meaning commonly required in business reporting. It is XML-based and uses the XML syntax as well as related XML technologies such as XML Schema, XLink, XPath, and Namespaces to articulate this semantic meaning. One use of XBRL is to define and exchange financial information, such as a financial statement. The XBRL Specification is developed and published by XBRL International, Inc. (Wikipedia, 2010b).

HOW DOES XBRL WORK?

XBRL encompasses various components and documents. The documents most critical to understanding the use of XBRL in the reporting process are the XBRL specification, XBRL taxonomies, XBRL instance documents, and Style sheets. Specification provides a technical explanation of XBRL and how it works, sets out the framework of XBRL, and explains in detail the syntax and semantics of XBRL taxonomies and instance documents. Taxonomies contain the concepts and interrelationships used in a particular type of business reporting and, taken in conjunction with the instance documents, enable the reports to be constructed. Instance documents consist of a collection of data elements tagged on the basis of the concepts found in the taxonomy being used. Although, Instance documents can be used to prepare human-readable reports, they are not, in themselves, human readable but computer readable as XBRL was designed for moving data reliably and consistently between systems. Style sheets are used when instance documents are converted to human-readable reports. Style sheets can be in various forms such as Cascading Style Sheets (CSS), Extensible Stylesheet Language (XSL) Style Sheets or spreadsheets. To develop useful financial statements, for example, style sheets will be prepared to add the necessary presentation elements to the data from the instance documents, yielding results that look like financial statements which can then be presented in HTML, PDF, word processing or other presentation formats readable by humans (Canadian Institute of Chartered Accountants, 2005).

XBRL works by using data markup to turn data into information. Data becomes interactive when it is labeled using a computer markup language that can be processed by software for sophisticated viewing and analysis. These computer markup languages use standard sets of definitions, or taxonomies, to enable the automatic extraction and exchange of data. Interactive data taxonomies can be applied — much like bar codes are applied to merchandise — to allow computers to recognize that data and feed it into analytical tools. XBRL (eXtensible Business Reporting Language) is one such language that has been developed specifically for business and financial reporting (Securities and Exchange Commission, 2010).

For the purpose of illustration, let us assume an XML example using a person as an entity to describe. Every XML entity begins with an identifier: also known as a start element. This identifier tells the parser that a "person" entity is being examined. Within the "person" entity, there are details, called attributes, which describe the person, an example might be: < hair_colour >, < eye_colour >, < height > etc. In an XML document, this information would look like this:

```
< person >
< hair_colour > RED
< eye colour > GREEN
< height > 6
```

When a computer interprets the pattern, it can discern that the person's hair colour is RED, eye colour is GREEN, and the height is 6 feet. If we transpose this to financial information, for instance, where we want to define a reporting period for financial data, the following would be the XBRL data:

```
< xbrli:period >
< xbrli:startDate > 2004-01-01
< xbrli:endDate > 2004-12-31
```

This data indicates a start date of 1 January 2004, and an end date of 31 December 2004. Information that is used within the attributes of an XBRL entity is derived from a database. A database may be a textual flat file, an excel document, or an Oracle database (Morris, 2009).

APPLICATIONS USING XBRL

In order to produce an XBRL document, it is necessary to use some type of middle application language. Languages such as PHP, PERL or ASP are contenders. These languages can query a database for appropriate information and display the results in XBRL, for use in documents. In December, 2008, the US Securities and Exchange Commission announced plans to require all publicly traded companies to provide their financial statistics using XBRL. The 500 largest companies were required to begin filing their data by December 15, 2008. As a result, a number of applications have emerged to meet the need for XBRL development.

These applications can be divided into ten categories: (1) Taxonomy Editor (2) Instance Creator (3) Instance Viewer (4) Instance Validator (5) Document Converter (6) Version Converter (7) Analyzer (8) Auditor (9) Searcher (10) GL Applications (Susa, 2009). Each of these application types is important to development of XBRL documents.

Oracle has embedded XBRL application systems into their Enterprise Performance Management system, thus enabling users to easily report financial statistics using XBRL (Oracle Corporation, 2009). Information Builders, a company based in Redwood, California, has produced an application that allows users to publish and consume XBRL document. Tagetik has provided an application to help Chief Financial Officers (CFOs) and Chief Internal Officers (CIOs) create financial reports for their companies (Cuomo, 2009). These are a few examples of applications built to ensure that companies can produce their reporting products in a well formatted manner, including the ability to consume and parse information from other companies, all using XBRL.

Edgar Online recently announced the development of an application using XBRL which will incorporate business data using graphical systems. The application, titled I-Matrix, allows users to access a dashboard which will enable input of information and output of XBRL based documents (Edgar Online, 2009). Additionally, Edgar Online published an Excel add-on application which allows users the ability to view company information from SEC filings in Microsoft EXCEL documents (Edgar Online, 2009). Microsoft has also developed an application to help consumers deal with XRML. Their solution is called Microsoft Official Solution Accelerator for XBRL. This system helps users analyze and author documents using Microsoft WORD and EXCEL.

Recently, the Microsoft Corporation allied itself with NASDAQ and PriceWaterhouse-Coopers to produce an application titled "The Investor's Assistant." This application is designed to load information for up to 20 companies spanning 11 quarters of financial data. Investors could compare information for many companies simultaneously, and almost instantly, giving the ability to do massive information analysis in a short period of time. PriceWaterhouse combined forces with the Insurance Accounting and Systems Association in the development of an application titled X-Fire (All Business, 2003). X-Fire is an acronym for Extensible Financial Reporting. It is a database tool kit, the first of its kind, to allow insurers the ability to convert reports into a XBRL format that will help standardize information sharing. Free access is offered for a few months after which a fee will be charged to companies who opt to continue using the program.

Also, Edgar Online has combined efforts with R.R. Donnelly and Sons Company to produce an application called TryXBRL.com. The site allows users to view and analyze XBRL tagged information. The Securities and Exchange Commission (SEC) has developed two applications, titled Interactive Financial Reports and Executive Compensation (Securities and Exchange Commission, 2007). Interactive Financial Reports allows users the ability to look at and research financial data on 65 companies. Users can also create charts for personal usage, mashing together data such as net income versus net sales. The Executive Compensation tool allows users to view the compensation package for executives, allowing for comparison with other companies based on common characteristics. This information can be downloaded into Microsoft Excel as well.

Applications such as the aforementioned use a database for long term storage of information. It is important to remember XBRL is a mark-up type language, not a procedural language like Java or C++. XRML is the end product .when a database is combined with a program able to select information out of the database and translate it into a product delivered to an end user either on screen or as a file. From the aforementioned applications, it is clearly demonstrated that users, be they investors or Chief Executive Officers (CEOs) or others in the business world, will come to rely on XBRL as a business standard. Information reported with this system will be viewed as the bottom line truth in reporting. As a result, it is critical that this information be validated, not only as an XML document, but that validation rules should be applied at the database layer as well, to provide an increased level of data accuracy.

DATA VALIDATION

There are a number of ways to validate data that will be a part of an information system for the financial arm of a company. At the user level, numeric values can be tested to ensure that they conform to what the database requires for information. Also, data can be checked to conform to other data, either on a form, or within a database, to ensure correctness. This involves checking for correctness prior to the information going to the database to, for example, prevent a user who puts too many digits on a zip code for an address. Prescribed approval procedures should be established for the generation of financial statements from tagged data, whether for inclusion on Web sites or other purposes. These procedures would be applied to financial statements generated at a point in time, and to any subsequent updates. For financial statements generated on a real time basis, a more complex set of procedures would be needed, so that changes in the tagged data would be subject to proper controls ensuring their integrity and accuracy on an ongoing basis. This may require applying continuous assurance techniques, such as online monitoring and exception reporting software, and other computer-aided assurance techniques.

For XML related languages, there could be a review of the information for conformity to a set of standards for the language itself. Procedures should be established to ensure that the tagging of data is complete and accurate. This will ensure that other systems and programs understand what the other program is talking about. There are also ingrained data type definitions that ensure information conforms to the type defined for the XML tags. An appropriate taxonomy review would involve considering the details of the taxonomy to ensure that it is up to date in the context of current standards and requirements, and that it is being applied properly.

In defining the best way to validate data in a database, it is first needed to understand what strategy will be used for storage of XBRL data. In relational databases, the least complex system of storage consists of putting the entire document or document fragment as text in a table column. While this method preserves the character of the XML document, or XBRL in this case, it has limitations for data validation. In this format, the data itself is not reviewed, but rather stored as a continuous character string. In effect, the structured nature of XML and of relational databases is not taken full advantage of.

A more prudent method, called shredding, distributes the XML or XBRL type information across the columns of a table allowing users to take advantage of data validation techniques and the structure nature of XML. Other database systems take this a step farther and allow for schema based shredding, where each level of the XML hierarchy is inserted into a different table. Research shows the shredding method should be the method of choice to ensure data accuracy for XBRL systems. The reason is that XBRL due to its atomic nature, will allow for individual data validation at the database level. Because XBRL can link instance documents back to files on disk, the possibility that such linkages might be exploited by hackers and other intruders may pose a security threat that needs to be addressed. In such cases, additional security precautions, such as encryption and firewalls, should be considered. It is important to validate at the database level because database level validation will aid in preventing erroneous data from being inserted into the database should a hacker or other individual attempt to attack the information system. Second, validation at the database level will enable a second fail safe to ensure that correct information is being inserted into the database, thus preventing attempts at manipulating data for nefarious reasons.

Prevention of database hacking should be paramount to ensure data integrity, and thus customer trust and product quality. This will guarantee the information used by investors for multi-million dollar decisions is accurate and trustworthy. When it comes to the Stock Market and other methods of monetary exchange, emotions, particularly trust, are important in decision making. A well protected database will ensure that the information inside can be trusted. In addition to deterring hackers, companies must ensure employees and other users cannot enter data that is inaccurate (Morris, 2009).

In order to prevent pre-meditated or accidental insertion of incorrect information into the database, validation of data at the database layer should take on a high level of importance. Mathematical calculations within the database should take place every time a manipulation of data occurs to double check the accuracy of data. Rules placed on the database can constrain user input, allowing numbers to be validated as they are entered. For example, if the number of shares owned in a company were to be changed by a user, and the same user attempts to change the overall values of the owned shares, a check should be in place to ensure that the number of shares and their combined value match what the user is attempting to input, or this there should be an automated check using an outside reference to double check the information. Thus a single user cannot act alone and enter bad data.

A different form of data validation should also be involved in database storage of financial information, which restricts what data that a user can change. In effect, the information in a financial database should be compartmentalized so that no one person holds the complete set of keys to the companies financial data. This could take the form of a company's finance department only allowing their chief to change the company value, while lower level workers are only allowed to deal with the details that go into that calculation. In this way, if the chief financial officer attempts to change the value of the company without supporting input from lower level departments, the database will report a disparity between the data entered, and thus prevent the change from happening without supporting documentation or other details. In the same way, lower level workers will not be allowed to change the company's overall value unless the

Chief Financial Officer has approved the change. Through the use of a database in this fashion, a set of checks and balances can be levied upon financial departments to prevent inaccurate reporting (Morris, 2009).

METHODOLOGY

This paper adopts the secondary data analysis methodology which involves data collected by someone other than the user. Common sources of secondary data for social science include censuses, surveys, organizational records and data collected through qualitative methodologies or research. This method is found suitable when research issues are particularly macroeconomic in nature (XBRL has a universal applicability). Also, secondary data analysis saves time that would otherwise be spent collecting data and, particularly in the case of quantitative data, provides larger and higher-quality databases than would be unfeasible for any individual researcher to collect on their own. In addition, analysts of social and economic change consider secondary data essential, since it is impossible to conduct a new survey that can adequately capture past change and/or developments. This wealth of background work means that secondary data generally have a pre-established degree of validity and reliability which need not be re-examined by the researcher who is re-using such data. Furthermore, secondary data can also be helpful in the research design of subsequent primary research and can provide a baseline with which the collected primary data results can be compared to (Wikipedia, 2010a).

RESULTS

XBRL HAS GONE GLOBAL

The accounting industry is in the midst of a technological tsunami in which antiquated closed, proprietary financial reporting systems are being challenged by more cost effective, XBRL-based systems (Bergeron, 2010). XBRL has gained momentum globally due to regulatory adoption. Regulatory bodies across the world are pushing for XBRL filings. The Securities Exchange Commission has played a vital role in accelerating adoption of XBRL in the US. In one year, XBRL has grown from a single country comprising 13 members to a global movement as it is now being adopted by 70 members in 400 organizations in 12 countries, including 19 stock exchanges, totalling more than USD 2.5 trillion in market capitalization. XBRL is growing exponentially, and this is just the beginning (Chandran, 2010). XBRLised filings have the potential to enhance the speed, accuracy and usability of financial disclosure and cut down costs for investors. Voluntary filing program for XBRLised returns has been initiated by the exchange in early years and is moving towards mandatory filing in a phased manner. In December 2008, SEC made it mandatory for companies above US \$5 billion as global float, to file their returns from June 2009 quarter onwards in XBRL format and around 500 companies were expected to file XBRLised returns with the intention of phasing in 100 percent compliance by all companies over the next couple of years. The SEC also mandated that all mutual funds should start reporting in XBRL in 2010. The Federal Financial Institutions Examination Council in US has achieved major success with the use XBRL for regulatory bank reporting. The FFIEC implemented XBRL-based solution in 2005 for the filing of call reports which was used by more than 8000 financial institutions. The results were phenomenal and showed an increase from 66% to 95% in data cleanliness, from 70% to 100% in accuracy, from weeks to hours in timeliness, and a 15% rise in the productivity of analysts.

XBRL projects have been undertaken in countries of the world such as Belgium, Canada, Chile, China, Korea, Netherlands, Singapore, South Africa, Spain, United Kingdom, Denmark, Germany, India, Ireland, Japan, New Zealand, Nevada, to name a few. In future, all financial reporting will be done in XBRL. While XBRL has not been adopted in Nigeria, its use is growing and becoming more significant in other parts of the world, particularly through the efforts of regulatory authorities.

XBRL AS A STANDARD BUSINESS REPORTING (SBR) MODEL

Standard Business Reporting (SBR) is an initiative to simplify the business reporting. The current reporting framework imposes a heavy burden on business in terms of reporting. A business entity has to submit its information to multiple agencies and quite often same data to the different agencies. So, SBR was thought of with the aim of relieving entities from this burden. The most obvious choice to achieve standardization and seamless exchange of information is XBRL. The use of XBRL in SBR has been majorly influenced by Netherlands Taxonomy Project and also by the XBRL project for tax filing in the UK, and company financial reporting to the US SEC. In 2003, the Dutch government started the Netherlands Taxonomy Project (NTP) to create a multi agency taxonomy and communication infrastructure. The Dutch government now collaborates with Australia, New Zealand and Singapore in Standard Business Reporting (SBR) programs. The key objectives of SBR include reduced time and effort spent preparing and filing reports for government by businesses. SBR can be considered an application profile of XBRL (Wikipedia, 2010b). Many other countries are planning to adopt such simplified and one-point reporting process using XBRL. To name a few of them, we have the United States, the United Kingdom, Japan, Spain, China, Belgium and Canada. The Committee of European Banking Supervisors (CEBS) has also been involved in taxonomy development.

XBRL is today managed and promoted by XBRL International, a not-for-profit consortium, with companies, government bodies and other organizations as its members. XBRL International is comprised of jurisdictions, which represent countries, regions or international bodies and which focus on the progress of XBRL in their area. There are about 28 jurisdictions representing different countries and regions. Anyhow, trying to stay ahead of the curve for comparative advantage you have a fiduciary responsibility to learn more about XBRL and the impact on your own organization.

BENEFITS OF XBRL

Uses for XBRL generally fall into two categories, viz., External Reporting and Internal Reporting. External reporting is for regulatory compliance, while internal reporting is for data consolidation and reporting. XBRL provides a common platform to manage sensitive information – internally and externally – in financial reports. It removes the risk of endorsing error-laden reports, late filing of reports, and non-compliance with regulatory acts that CEOs and CFOs are increasingly susceptible to. Its addition to financial reporting toolkit enables: quick and useful comparisons between different elements of financial data, reduction of the risks associated with external reporting, and simultaneously saves time, cost, and effort in producing reams of financial documents. XBRL also provides a powerful process for data consolidation/data integration, and reporting. Data integration is the process of procuring data from spreadsheet and financial systems into XBRL.

XBRL transforms paper reports into multipurpose electronic documents, which reduces the risk of data error. Companies can record how the virtual documents are used, who uses them, and for what purpose. The generation of reports is made easier for companies, as applied at general ledger and journal entry. Organizations are also able to report under different accounting standards. With XBRL, any single piece of information never needs to be keyed in again as it flows through the organization to external stakeholders. Viewers of XBRL data can highlight if the currencies are different and can quickly retrieve data electronically as defined by the tag. XBRL benefits everyone who relies on timely and accurate reporting of business performance, from management and finance to intermediaries to analysts, creditors and investors (Chandran, 2010).

The benefits of XBRL are legion. Coffin (2001) records that the top ten 'killer applications' with XBRL include: Single-click regulatory compliance tools; Consolidation engines including Application Service Providers; Conversion and intelligent agent web tools; Loan application and maintenance systems; E-commerce taxation add-ins; Due diligence tools; US GAAP-to-IAS reconciliation tools; Continuous monitoring systems; Audit trail systems; E-marketplaces; and Economic Knowledge bases; all XBRL-enabled. While XBRL can be used to prepare human-readable financial statements and reports, it is important to note that the biggest benefit of XBRL lies in enabling computer systems to retrieve data directly from XBRL instance documents. The data can then be organized in a form that satisfies the needs of particular users, such as financial analysts or regulators (Canadian Institute of Chartered Accountants, 2005). (See the appendix (after references) for tables showing graphically the stakeholder benefits of XBRL both for the public sector and the private sector).

MAJOR XBRL PROJECTS

INTERNATIONAL FINANCIAL REPORTING STANDARDS (IFRS) TAXONOMIES

Good XBRL implementation software enables users to work with taxonomies on a report-by-report basis. Specific reports are built into taxonomies, which may include balance sheet, income statement, and other items, depending on the required nature of information. Reports may collect numerical financial

information, textual information, or a combination of them.

The IFRS taxonomy is core taxonomy, which is for designed for profit oriented enterprises which prepare their reports in accordance with IFRS's. It is being used and extended by many countries. The International Accounting Standards Board is an established jurisdiction of XBRL International. The IASC foundation has a team entirely dedicated for development of IFRS taxonomy. The IASB has issued the IFRS 2009 Taxonomy, which is a complete translation of International Financial Reporting Standards (IFRSs) as of 1 January 2009 into XBRL. With almost the entire world, converging into IFRS, the IFRS taxonomy would be more or less adopted by all the countries and be extended to cater to the requirements of the countries. The IFRS 2009 taxonomy was published as exposure draft in January 2009. The comments have been incorporated in the taxonomy wherever required.

Along with taxonomy, a draft Due Process Handbook for XBRL Activities has been published for public comment. It describes the methodology and process followed in developing the IFRS Taxonomy and in all other XBRL activities. The comment period became closed on 26 June 2009.

COMMON REPORTING AND FINANCIAL REPORTING (COREP-FINREP) FRAMEWORK

The Corep-Finrep Project is one of the major XBRL projects in the banking and financial sector.

The Committee of European Banking Supervisors (CEBS) has implemented XBRL for its common reporting framework COREP (COmmon REPorting) and Financial Reporting framework (FINREP) for credit institutions and investment firms operating in the European Union. The COREP framework is designed for obtaining the information on capital adequacy based on the Basel II Guidelines covering the capital requirements for credit risk, operational risk and market risk. The FINREP framework is established for financial reporting. There are in all 18 COREP and 40 FINREP templates. The COREP and FINREP taxonomies are an XBRL depiction of the standard data models and are based on the COREP and FINREP templates. These taxonomies import the elements IFRS 2006 and also advanced XBRL specifications viz. Dimensions and Formula Link base. The COREP - FINREP taxonomies can be easily customized to the requirements of national supervisors. This implies the national supervisors can add elements or restrict the taxonomies within the specified limits.

CONCLUSION AND RECOMMENDATIONS

With the advent and adoption of eXtensible Business Reporting Language (XBRL) in the financial world, the investors and management have discovered an unprecedented financial tool that enables swift, meaningful comparisons between elements of financial data. XBRL – also known as Interactive Data – is an electronic reporting language for the communication of business and financial data globally. To reduce risks and improve the efficacy of the external reporting process, investment in state-of-the-art technology is quintessential. XBRL is a standards-based way to communicate and exchange business information between business systems. These communications are defined by metadata set out in XBRL taxonomies, which capture the definition of individual reporting concepts as well as the relationships between concepts and other semantic meaning. Information being communicated or exchanged is provided within an XBRL instance.

The early users of XBRL included regulators such as the U.S. Federal Deposit Insurance Corporation (FDIC) and the Committee of European Banking Supervisors (CEBS). The Federal Deposit Insurance Corporation (FDIC), has implemented an XBRL filing system for all US banks. Common functions in many countries that make use of XBRL include regulators of stock exchanges and securities, banking regulators, business registrars, revenue reporting and tax-filing agencies, and national statistical agencies. XBRL is making its presence known daily in the business world. It is currently being used by the SEC and Fortune 500 companies for reporting of business facts and figures. Many businesses are already beginning to develop applications that will make extensive use of this format of information. Additionally, the SEC is beginning to mandate use of this system. In using XBRL, efficiencies will be gained in financial reporting, allowing users the ability to review and analyze more data than ever before.

As a result of this wave of usage and in view of the invaluable contribution of the XBRL to the growth and development of global economies, the following policy issue recommendations are made:

(a) Investment in XBRL software by companies is a wise decision that not just makes financial reporting risk-free but also ensures accuracy and efficiency of the external reporting process. It is no exaggeration that there is no better time than now to make that all important investment in XBRL software. XBRL provides companies this great opportunity to invest in technology to leverage their net ROI.

(b) Organizations will need to treat XBRL as an integral part of the external financial reporting process. Every organization in every industry, particularly the big size ones should immediately set in motion activities that will culminate into a full embrace of the XBRL digital reporting technology in order to take advantage of the revolutionary development affecting financial services, e-Government, business intelligence / knowledge management, supply chain, information providers /content, and business performance.

(c) An XBRL Nigeria Steering Committee should be formed to promote the use of XBRL in Nigeria and to develop the components, such as taxonomies, that are needed for XBRL to be used in the Nigerian environment. As with XBRL Groups in other countries, XBRL Nigeria should be formed under the umbrella of the XBRL International Steering Committee.

(d) Regulatory bodies such as the Securities and Exchange Commission, the Central Bank, the Accounting Standards Board, the Deposit Insurance Corporation, the Corporate Affairs Commission, etc should set up advisory committees that will pave the way for them (regulators) to require companies to turn their traditional financial statements into more easily searchable, comparable, and interactive documents. For example, through a committee's advice, all publicly traded companies could be required to file audited XBRL financial statements in three to five years. In the near term, the largest companies could be required to use the extensible business reporting language to tag their financial data and share that information with the regulatory bodies without an external auditor's review.

(e) Statistics bodies in Nigeria and others, notably in Africa, should recognize the potential of XBRL filing, because they can receive filings into their systems and process them electronically with little or no human intervention. Accordingly, the Securities and Exchange Commission (SEC) should establish a voluntary XBRL filing program. Statistics control body in Nigeria could carry out pilot testing for some of its filings. In Europe, progress is being made to standardize reporting by European financial institutions in 25 countries using XBRL.

(f) The government should, through a strong will power reflected in development activities/policies, embrace and promote the XBRL as a national means of communicating current Generally Accepted Accounting Principles, future business standards, current national reporting practice, and flexible/future general reporting practice. There will be a learning process, either in software that links the legacy accounting systems in organizations to the Nigerian Government gateway and carries out the data translation, or as part of their upgraded accounting system software. In addition, as the initial use of XBRL can raise technical issues not found in traditional reporting, the implementation team will need to have access to or develop a resource with XBRL knowledge that can help other team members with any process, software, or technological issues that arise. The way to get there is by following the path of: Needs Assessment, Design Solution/Business Plan, Training and Education, as well as Implementation.

(g) It will be critical to implement proper database settings to ensure that the information being placed in the database is correct, and accurate. This can be done through implementing rules at the database level that will add checks and balances to the financial information.

(h) There can be two forms of these checks and balances: arithmetic accounting rules to ensure that all values are adding up correctly and data input rules ensuring that the right people are inserting the correct information and that no one person holds all of the keys to a company's financial data input. Producing a sound information assurance program through database level information validation will be critical to adoption of XBRL as a standard.

(i) The XBRL concept, projects, and education should form a strong part of the curricula in schools at tertiary and secondary levels as well as the training/development programs of XBRL stakeholder organizations.

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APPENDIX

TABLE 1: XBRL STAKEHOLDER BENEFITS FOR THE NOT-FOR-PROFIT AND PUBLIC SECTOR

Department of Statistics	XBRL allows an analyst to pull information across say all companies in a particular industry or according to some other criteria. XBRL provides a more efficient and cheaper platform for a data warehouse of registered and unregistered companies.
Central Government	Similar to the HTML document revolution, XBRL documents will be a standard feature of most commonly used software applications in the near future. XML is already being used to transmit selected financial statement information data to Treasury
Registrar of Companies	All filings currently made with the Registrar are scanned and stored electronically, but cross-sectional analysis of the information is impossible. Requiring financial statements to be submitted in XBRL would provide a powerful analytical tool to the regulator and to others accessing that information
Inland Revenue	Companies will render tax returns via XBRL. Companies will not have to recreate source data for the purpose of tax filings. The tax agency can control the format of tax filings via appropriate taxonomies.
Securities Commission	Recent studies of public companies indicated that 99% of companies surveyed have a Web site and that the vast majority of those companies provide financial information on their Web site. The Securities Commission has started a project that will enable them to readily check that disclosures and filings are accurate and not misleading.
Reserve Bank	Deutsche Bundesbank is facilitating the development of its own taxonomy to monitor and regulate financial statements. Likewise, any country whose prudential supervision regime is founded on comprehensive disclosure to facilitate comparability will benefit from XBRL.
E-Government	Access to information is an important consideration. XBRL is an appropriate format to "secure" that financial information.
Accounting Institutes / Institutes of Chartered Accountants	XBRL will result in the automated creation of an XBRL compliant report from an accounting database and other original source files. The Institute will control a common data format for many software applications and many types of reporting. A shared data item taxonomy will be created which is always grounded in existing standards.
Schools	Submitting financial statement information in XBRL would facilitate benchmarking the financial performance of schools.
The Public	The benefits of XBRL are significant. After XBRL becomes established and well known the public will demand the XBRL format from not-for-profit organizations. Public sector organizations will want to use this format as it is more desirable for users of their financial information. Initial demand for financial statement information in XBRL will probably come from Treasury and financial institutions as they begin to experience the advantages from early adopters. Enterprises that adopt XBRL sooner rather than later will benefit from increased coverage and analysis by stakeholders. We expect that the implementation of XBRL will be entirely market driven once the benefits can be seen through their overseas equivalent organizations

SOURCE: Coffin (2000)

TABLE 2: XBRL STAKEHOLDER BENEFITS FOR THE PRIVATE SECTOR

Corporate – External Financial Reporting	Companies who prepare financial statements: More efficient preparation of financial statements because they will be created one time and rendered as printed reports, on Web sites, as Edgar filings, or as other regulatory filings. XBRL financial information can be rendered in various formats based upon the user's request, thereby reducing the costs associated with report preparation. In more general terms, XML is projected to reduce the cost of publishing content to the Web by 30 to 50 percent.
Corporate – Internal Financial Reporting	Internal management reports will be available on line at any point in time. XBRL makes a reality the concept of a “virtual close” rendering up to the minute financial information.
Corporate – multi-national	XBRL will enable large multi-national companies to quickly prepare, analyze and publish the financial statements for numerous subsidiaries in different countries, with different languages, on different computer systems.
Credit Controllers/Banks	Credit Analysis - providing XBRL financial information for credit request purposes will enable less costly and more timely analysis. Companies applying for a loan will make their financial information available to the bank in XBRL. That financial information will be e-mailed to the bank and will automatically be imported into the bank's loan analysis software. Credit approval time, for example, will be reduced from days to a matter of minutes.
Shareholders	XBRL provides a robust platform for significantly enhanced assessment, extraction, and query tools for shareholders and other users in the market.
Investors	An investor can use XBRL to compare the performance of a range of companies belonging to different revenue levels, located in different countries and using different currencies and languages.
Analysts	XBRL will result in enhanced distribution and usability of existing financial statement information, including: automated analysis, significantly less re-keying of financial information from one form into another form, receipt of information in a preferred format according to a specific style of analysis.
Auditors	A client will be able to transfer all required audit schedules to its auditor in an industry standard format. XBRL will revolutionize the way we do audits by facilitating the concept of the “continuous audit”.
Educators	Educators have a major role to play in both educating the general business public and in providing students with the ability to use XML technology. XBRL is a subset of XML specifically focused on efficient and effective financial reporting.
Researchers	Typically researchers make decisions about the past (cf. analysts). XBRL has strong archiving capabilities. In particular, it provides the ability to store and extract financial information in a similar way. XBRL taxonomies will facilitate this process. Researchers will also be able to look at accounting policies and accounting policy changes easily and quickly using XBRL.
Financial Publishers and Data Aggregators	XBRL facilitates more efficient data collection. It lowers operating costs associated with customized, idiosyncratic data feeds and reduces errors. It also “adds value” to the data and increasing transaction capacity.
Independent Software Vendors	Virtually any software product that manages financial information will use XBRL for its data export and import formats, thereby increasing its potential for full-interoperability with other financial and analytical applications.

Source: Coffin (2000)

ORGANISATIONAL CULTURE MANACLES TO EMBARK UPON DURING GLOBAL CONDENSE

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ABSTRACT

The impending pessimism about the global slowdown and its impact in countries like Brazil, Russia, India and China, employees are either facing or looking at a probable 'pink slip' (discharge notice). Human Resource departments in all companies are under the scanner. They have been subjected to intense pressure to cut down costs while keeping the standards and quality of services high. The employees in turn are influenced by the changing work culture. In such a scenario, the stage is set for path-breaking reforms and candid innovation to keep both factors of production, that is, employees and employers satisfied. This paper discusses the importance of innovative Human Resource Management techniques and practices that have deemed importance in the current economic scenario and the prudent steps HR can take in order to increase organisational effectiveness. It also attempts on understanding the flourishing challenges in organisational culture due to global recession and economic meltdown and presents some ideas which can be used to build a stronger and more attractive culture inside organizations.

KEYBOARDS

Organisational Culture, Global slowdown, HRD.

UNDERSTANDING CORPORATE CULTURE

In any organization, there are the ropes to skip and the ropes to know”

- R. Ritti & G. Funk Louser

Culture refers to the complex whole which includes knowledge, belief, art, morals, law, customs and other capabilities and habits acquired by men in a society. Two terms are key to the concept culture: history and shared phenomenon. With regard to the first, it may be stated that cultural mores of a society are passed on from generation to generation. The second key term which is basic to culture implies that the cultural ethos are shared among the members of a society. Organisational culture has been defined as the philosophies, ideologies, values, assumptions, beliefs, attitudes and norms that knit an organization together and are shared by its employees. The employees have their own values, beliefs and habits which works together in an organization. Their own values and beliefs will not allow individuals to grow in an organization. They have to adapt the culture, the style, attitude of the work environment that prevails in the organization. It's important to determine which country the clients belong to or the origin country of the organization. Every country has its own culture and beliefs. Joanne Martin emphasizes the differing perspective of cultures in organizations. "As individuals come into contact with organizations, they come into contact with dress norms, stories people tell about what goes on, the organization's formal rules and procedures, its formal codes of behavior, rituals, tasks, and pay systems.

EVOLUTION OF ORGANISATIONAL CULTURE

According to Arthur F Carmazzi, the dynamics of organisational culture are an "evolutionary" process that can change and evolve with the proper psychology of leadership. At each level of organisational evolution, people will be working, acting, thinking, and feeling at different levels of personal commitment. There are five types of organisational cultures which help in evolving a greater and more effective working environment.

BOX 2.1: TYPES OF ORGANISATIONAL CULTURES

1. Blame culture Characteristics

- little trust
- act in self interest
- do not take many risks
- do not usually speak their mind
- do not come up with many new ideas
- paycheck driven
- stagnating growth
- avoid responsibility
- high level of fear

2. Multi-Directional Culture Characteristics

- Little communication
- People involved within their own departments only
- Loyalty is to specific groups and not to the organization
- Cliquish
- Lots of gossip
- Critical of other departments
- Little cross-departmental cooperation

3. Leadership Enriched Culture Characteristics

- People view the organisation as an extension of themselves
- People feel good about what they personally achieve through the organization
- Cooperation is exceptional
- Individual goals are aligned with the goals of the organization
- People use group resources to actively solve problems
- Not limited to job description, will do what it takes to make things happen
- Mostly everyone is in sales, marketing and PR; they are walking ambassadors
- People are consistently bringing out the best in each other
- Leaders do not develop followers, but develop other leaders
- Leadership is contribution driven and not ego driven
- Very Low employee turnover
- Most are passionate about the organisation and what it represents

4. Brand Congruent Culture Characteristics

- People believe in the product or service of the organization
- People feel good about what their company is trying to achieve
- Cooperation is good
- Use personal resources to actively solve problems
- Not limited to job description, will actively look for solutions
- Many are passionate about the product/service

5. Live and Let Live Culture**Characteristics**

- Mental Stagnation
- Low Creativity
- Average cooperation
- Average communication
- Little future vision
- Monotonous routine
- Lacks passion

IMPACT OF CULTURE

Culture is vital to achieve a company's competitive strategy. When a company faces major change, often the dominant culture no longer supports the company's objectives. As John Kotter, a management expert, points out, the starting point for change efforts begin with a frank discussion of potentially unpleasant facts: new competition, shrinking margins, decreasing market share, flat profits, a lack of revenue growth, or other relevant measures of declining competitive position. These worrying signals are often followed by change efforts that come under many banners: total quality management, reengineering, turnaround, cultural change, right sizing and restructuring. A desired culture is therefore one that supports the competitive position and business plan of the company.

Organisational culture is usually created by the dominant coalition (top management with the power to set direction and effect structure in organisations). Their leadership style, in turn, influences communication. Culture therefore influences the communication climate (degree of openness and candor) in an organisation. Positive communication climates (humanistic or participative) encourage problem-centred, open and candid communication where people tend to be respected and trusted.

The converse applies in mechanistic organisations where the participation is replaced with power and control. A poor communications climate has a clear business cost including low morale, reduced production, poor customer service, loss of reputation (bad mouthing the company), weak relationships and reduced

personal and organisational learning.

TRIVIA IN CHANGING CULTURE

As long as the culture remains relevant to the organisation it benefits managers as they are relieved of much of the work associated with controlling or directing staff. However, if the environment in which the organisation is operating changes, the culture can become dysfunctional. Employees in a dysfunctional culture will then persist in applying old (and irrelevant) strategies to new problems denying their obsolescence and blaming external causes and individuals for their failure, rather than violate the culture. Left unchecked, this behaviour can continue until the culture causes the organisation to die rather than adapt. Cultural change therefore involves the creation of a new system of values and beliefs that allows the organisation to perform.

Many organisations are re-designed or restructured, on the assumption that this is all that is needed to achieve major change. If the organisation has a dysfunctional culture and the culture is left unchecked a phenomenon known as 'spring-back' occurs, that is, people simply continue to act as they had under the old structure, regardless of their new titles and reporting lines. However, once a culture is successfully changed, the new volunteer mindset it creates relieves management of a piecemeal struggle to reform possibly hundreds of management and/or work practices. This represents an enormous saving of valuable resources.

CHANGE IN CULTURE DUE TO THE ECONOMIC MELTDOWN

Due to the economic crisis springing up, there has been a tremendous effect in stock market, business inventory levels, general wages & most importantly the weakening of organizational culture. It is important to understand how deeply the roots of organizational culture go during this period. Organizational culture is rooted in the shared tacit assumptions of the organization. These tacit beliefs drive behavior throughout the organization.

Edgar Schein believes organizational culture provides members of the organization "stability, consistency, and meaning." The change agent who threatens those three things will surely meet strong resistance. At this present junction every organization which is affected by global recession definitely will also be undergoing some change in its culture. As organizational cultures are created by new rituals, practices, stories, this is again the time for formation of new stories, behaviour, practices.

- Existing employees are scanned under organizational x-rays daily,
- employees are terminated on different causes created to screen the true reason for chucking out of the job – employee cut down,
- working hours are increased,
- facilities, benefits and salaries are cut down,
- increased work load and responsibilities

All these kinds of actions taken by HR to meet recession also affects the freedom, joy of working, homeliness for the employees, which in return will change the behaviour, attitude, commitment thus indirectly affecting the culture of the organization.

SUGGESTED HR STRATEGIES TO REDUCE EFFECTS OF CRISIS

The need of the hour is to accelerate leadership and uplift management & operational skills at all the levels of an organization. In a bid to contain the damage from the down cycle and from structural inefficiencies, all possible short-term operational and structural measures to cut costs should be taken. These include adjusting production and management structures, cutting back overtime and temporary work, increasing efficiency and reducing personnel. Some of the strategies which HR can adopt at this moment to ensure minimum resistance to changing organizational culture are:

a. Continuous Self Assessment And Creative Thinking

Managers have to merge perception of the employees with the organisational culture and major changes are made from time to time based on changing trends of the business. However, the changing old norms and traditional values is a time consuming process. A dynamic climate is created through the cumulative efforts of the managerial actions, interactions, technological facilities and initiatives from the employees themselves. Continuous self assessment and creative thinking will help to bring about changes in organisational culture.

b. Behaviour based coaching

Behaviour based coaching can uniquely affect positive behavioural change impacting business results. Only behaviour based coaching can have a positive effect on valued behaviours e.g.; leadership behaviours which positively influence outcomes such as employee commitment, engagement and organizational climate, which directly affect performance and productivity levels associated with superior business performance.

c. Communication

Time must be dedicated to positive reasoning. Take should be taken to listen to the employees for confidence building. Staff should be encouraged to objectively give their assessment of where the organization was, where it is and where they believe the organization should be and what should be done to survive the recession. Staffs must be encouraged to support for the strategic action plans. At the same time, two ways communication process must be strengthened and time dedicated for feed backs.

d. Positive team culture

Shared vision must be stressed. Strategies and belief in team culture, improves symbiotic team spirit because of the positive value addition of synergy. HR Managers should at this time radiate and give hope and lift their staff from negativity to positivity. A positive team culture stresses collectivism, and symbiosis.

e. Learning

Learning is the key that opens the individual employee to knowledge beyond his/her immediate reach. Design programmes that put the organization on top of the pack and enable the organization have a competitive edge. Staff may not necessarily be moved from their places of work because of the innovations like e-learning and intranet services. Encourage staff to participate in workshops and conferences to enable them compare notes on experiences and learn from others. Where only a few staff can attend, those who attended should be given an opportunity to share their learning experiences with their colleagues at a forum.

BOX 5.1: LEADERSHIP FOCUS DURING DOWNTURN

- | | |
|-------------------------|----------------------------------|
| 1. Transparency. | 6. Incremental changes. |
| 2. Accountability. | 7. Address issues of insecurity. |
| 3. Credible leadership. | 8. Walk-the-talk. |
| 4. Mentoring. | 9. Coaching. |
| 5. Proactive strategy. | 10. Nurturing. |

CONCLUSION

Economic slow down, Financial Tsunami, down turn, recession, call it what you like but we seems to be heading for a definite period of persistent rise in uncertainties in the days ahead. We are experiencing what some would even call the worst recession since the Great Depression and the similarities between the Great Depression and the current recession aka Credit Crunch recession are very similar. Much like the credit crunch today, the Great Depression began with a stock market crash and the eventual meltdown of the financial system. As such, measures taken by different organisation across varied industry, in preparation for the bad times to come, ranges from the mild to the drastic – pay cut, hiring, freeze lay offs and retrenchment are the buzz words today. At this point,

more responsible senior leadership teams, good communication, learning and behaviour based coaching will have positive effect on behavioural change, thus leading to an increased productivity of better business practices.

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IMPACT OF REFORMS ON THE SOUNDNESS OF INDIAN BANKING

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ABSTRACT

After the set back of early nineties when the Government of India had to pledge the gold to acquire foreign currency to meet the severe problem of balance of payment temporarily, the Government planned to liberalize the Indian economy and open its door to the foreigners to speed up the development process as a long-term solution for the ailing economy. The economic liberalization move, which was initiated in 1991 when the new government assumed office, has touched all the spheres of national activity. Perhaps one area where the deregulatory policies had the maximum impact was the banking sector. The seed of the reforms in Indian banking were sown by the Narasimham Committee appointed by the RBI under the chairmanship of M. Narasimham, the former Governor of RBI, to examine the aspects relating to the structure, organization, functions and procedures of the financial system and suggest remedial measures. The Committee submitted its report in November 1991 and thus, began a new chapter in Indian banking. Norms for income recognition, classification and provisioning of assets besides capital adequacy were introduced in Indian banking in a phased manner with other measures. Induced by the forgoing revelations, an attempt is made to analyze the impact of reforms on the soundness of Indian Banking, which is divided into four sections. First section includes a brief review of the earlier studies. Second section covers the objectives, hypotheses and research methodology. Third section is devoted to a brief overview of the reforms initiated after 1991 in the Indian banking sector. In fourth section, an attempt is made to analyze the impact of reforms on the soundness of the Indian banking. To achieve the objectives of the study, the use is made of secondary data collected from the various sources like Report on Trends and Progress of Banking in India, Indian Banking Year Book, Performance Highlights of Public, Private and Foreign Banks in India, various journals such RBI Bulletin, IBA Bulletin, Professional Banker, Chartered Financial Analyst, ICAI Journal of Bank Management and various websites. To test the statistical significance, ANOVA technique is used. The analysis of NPAs clearly shows that there is a significant difference in the group-wise asset quality of Indian banks. Likewise, there is also a significant difference in the group-wise capital adequacy ratio (CAR) of Indian banks. Nevertheless, reforms have indeed transformed Indian banks into strong, stable, profitable and prosperous entities. Indian banking system can now claim that their level of NPAs have registered a declining trend over a period of time and is of international standards, with prudential provisioning, classification and an adequate capital base. But effective cost management, recovery management, technological intensity of banking, governance and risk management, financial inclusion are the areas, which will have a key bearing on the ability of Indian banks to remain competitive and enhance soundness. In this paradigm, improvement in policy framework, regulatory regime, market-perceptions and indeed, popular sentiments relating to governance in banks need to be on the top of the agenda to serve the society's needs and realities while being in harmony with the global perspective.

KEYWORDS

Soundness, Liberalization, Non-Performing Assets (NPAs), Capital Adequacy Ratio (CAR), Financial Inclusion, Market perceptions.

INTRODUCTION

After the set back of early nineties when the Government of India had to pledge the gold to acquire foreign currency to meet the severe problem of balance of payment temporarily, the Government planned to liberalize the Indian economy and open its door to the foreigners to speed up the development process as a long-term solution for the ailing economy. The economic liberalization move, which was initiated in 1991 when the new government assumed office, has touched all the spheres of national activity. Perhaps one area where the deregulatory policies had the maximum impact was the banking sector.

Until 1991, the banking in India was largely traditional. The bankers were prudent and cautious people who seldom took risks and were content with the normal banking activities i.e. accepting of deposits and lending against them. Labeled as "Agents of Social Change", their outlook was rigidly controlled by the policies of the Government, which were centered more on the alleviation of poverty and the upliftment of the downtrodden. The 1969 and 1980's nationalization of banks, bringing private banks under the state control, had the objective of realizing this government dream. Even as late as 1991-92, the profitability was a forbidden word in banking business. The banks were established to fulfill social objectives and their performance was evaluated on their 'task fulfillment' initiatives. Lending to the priority sectors, opening of rural branches, achievements in the implementation of Government sponsored schemes and adherence to the policies and programmes of the Government were the parameters considered for judging the performance of a bank.

Indian banking system has made commendable progress in extending its geographical spread and functional reach. The nationalization of banks helped in increasing the number of branches, volume of deposits and ensured wider dispersal of the advances. Despite impressive quantitative achievements in resource mobilization and in extending the credit reach, some deficiencies have, over the years, crept into the financial system such as decline in the productivity and efficiency of the system, erosion of the profitability of the system, directed lending played a critical role in depressing the profits, the directed investments in the form of SLR and CRR hindered income earning capability and potentials, portfolio quality suffered due to political and administrative interference in credit decision-making, increase in cost structure due to technological backwardness, average ratio of capital funds to RWAs remained low which created problems in international operations and the system remained de-linked from sound international banking practices.

Realizing all these ill effects, the efforts were made to bring reforms in the financial system of the country. The seed of the reforms in India were sown by the Narasimham Committee appointed by the RBI under the chairmanship of M. Narasimham, the former Governor of RBI, to examine the aspects relating to the structure, organization, functions and procedures of the financial system and suggest remedial measures. The Committee submitted its reports in November 1991 and thus, began a new chapter in Indian banking. The financial system reforms were based on twin principles of operational flexibility and functional autonomy so as to enhance the efficiency, productivity and profitability of the financial institutions continuously. It aimed at providing a diversified, efficient and competitive financial system with ultimate objective of improving the efficiency of available resources, increasing the return on investments in promoting an accelerated growth of the real sector of the economy. The specific goals of the reforms were the development of transparent and efficient capital and money markets, promotion of competition through free entry/exit in financial sector, improvement in access of financial savings, improvement of financial health of banks by recapitalizing, restructuring etc. of weaker banks, improvement in the level of managerial competence and quality of human resources, and building up

financial institutions and infrastructure relating to supervision, audit, technology and legal framework.

Induced by the forgoing revelations, an attempt is made to analyze the impact of reforms on the soundness of Indian Banking, which is divided into five sections. First section includes a brief review of the earlier studies. Second section covers the objectives, hypotheses and research methodology. Third section is devoted to a brief overview of the reforms initiated after 1991 in the Indian banking sector. In fourth section, an attempt is made to analyze the impact of reforms on the soundness of the Indian banking. Fifth section presents the conclusions and policy implications of the study.

REVIEW OF LITERATURE

The articles published on different facets of Indian banking reforms are restrictive in nature and have been found wanting in terms of the assessment of the impact of the reforms. A brief review of some of them is as follows:

Reddy and Yuvaraja (2001) viewed that financial sector reforms cover every sector of the economy. The adoption of international capital adequacy and accounting standards, deregulation of interest rates and entry of private and foreign banks underline that the speed of the financial sector reforms and sequencing of the reforms should take into account the realities of the Indian economy.

Patra (2002) suggested that several fundamentals must come together in order to make the Indian banking system stronger, efficient and low cost like strengthening of prudential norms and market discipline; adoption of international benchmarks as appropriate to the Indian situation; management of organizational change and consolidation within the financial system; and human resource development as the catalyst of the transformation.

Rao (2002) concluded that the Indian banking system has transformed itself from banking to the international banking. Regulations are forcing the banks to adopt better operational strategies and upgrade their skills. The system requires a combination of new technologies, well-guarded risk and credit appraisal, treasury management, product diversification, internal control, external regulation as well as skilled human resources to achieve the heights of the international excellence to play its role critically in meeting the global challenges.

Reddy and Reddy (2003) are of the view that the new challenges faced by the banks are forcing to attempt all new things with the same old rigid structure and system. What required is more managerial and administrative freedom to the management with commensurate and result oriented accountabilities. They stressed that the banks should move towards professional banking with requisite freedom to operate freely in the market within the regulatory and prudential framework prescribed by the RBI.

Muniappan (2003) focused on two areas - firstly, challenges faced by the banks and secondly, the management of these challenges. Every aspect of the functioning of the banking industry, be it profitability, NPA management, customer service, risk management, HRD, etc. has to undergo the process of transformation of aligning with the international best practices. He concluded that the future of Indian banking system needs a long term strategy, which would broadly cover areas like structural aspects, business strategies, prudential control systems, integration of markets technology issues, credit delivery mechanism, information sharing, etc.

Aggarwal and Sharma (2005) analyzed the existing banking environment and suggested the strategies to build up a more strong and vibrant banking system. They stated that the evolution of banking sector in India is likely to take the form of emergence of universal or quasi-universal banks and therefore, risk management and development of an appropriate regulatory system will remain the main challenge to be faced by the banking industry in future.

Ghosh and Das (2005) focused on whether, and to what extent, governments should impose capital adequacy requirements on banks, or alternately, whether market forces could also ensure the stability of banking systems. The study contributes to this debate by showing how market forces may motivate banks to select high capital adequacy ratios as a means of lowering their borrowing costs. Empirical tests for the Indian public sector banks during the 1990s demonstrate that better capitalised banks experienced lower borrowing costs.

Arora and Kaur (2006) stated that banking sector in India has given a positive and encouraging response to the financial sector reforms. Entry of new private banks and foreign banks has shaken up public sector banks to competition. Changing financial scenario has opened up opportunities for the banks to expand their global presence through self expansion, strategic alliances, etc. Banks are diverting their focus on retail banking so as to attain access to low cost funds and to expand into relatively untapped potential growth area.

Sinha (2006) considered the three alternative paradigms - values at risk, expected shortfall and expected excess loss, which may be used to determine the regulatory capital. Furthermore, it outlined the Indian banking scenario in respect of capital adequacy for the period 1996-97 to 2002-03. The results also showed that Tier-I capital of Indian commercial banks is positively related to operating efficiency and has negative relationship with NPA ratio. But no definite relationship between the CAR and bank size could be determined from the analysis.

Rakesh (2006) focused on the efficiency and productivity changes in Indian banking. The patterns of efficiency and technological change witnessed in Indian banking can be viewed as consistent with expectations in an industry undergoing rapid change in response to the forces of deregulation. As deregulation gathers momentum, commercial banks would need to devise imaginative ways of augmenting their incomes and more importantly their fee-incomes so as to raise efficiency and productivity levels.

Mandira and Yuko (2007) presented an analytical review of the capital adequacy regime and the present state of capital to risk-weighted asset ratio (CRAR) of the banking sector in India. In the regime of Basel I, Indian banking system is performing reasonably well, with an average CRAR of about 12 per cent, which is higher than the internationally accepted level of 8 per cent as well as India's own minimum regulatory requirement of 9 per cent.

Karunakar, Vasuki and Saravanan (2008) said that the problem of losses and lower profitability of Non-Performing Assets (NPA) and liability mismatch in banks and financial sector depend on how various risks are managed in their business. An attempt is made in the study to examine what is NPA? What are the factors contributing to NPA, the magnitude of NPA, reasons for high NPA and their impact on Indian banking operations? The lasting solution to the problem of NPAs can be achieved only with proper credit assessment and risk management mechanism.

Misra and Dhal (2010) concluded that banks NPAs are influenced by three major sets of factors, i.e., terms of credit, bank specific indicators relating to asset size, credit orientation, financial innovations (non-interest income) and regulatory capital requirement and the business cycle shocks. The study found that the terms of credit variables such as interest rate, maturity and collateral and bank specific variables had significant effect on the banks' non-performing loans in the presence of macro-economic shocks.

Debarsh and Sukanya (2011) emphasized on management of NPAs in the perspective of the public sector banks in India under strict asset classification norms, use of latest technological platform based on Core Banking Solution, recovery procedures and other bank specific indicators in the context of stringent regulatory framework of RBI. Non-performing Asset is an important parameter in the analysis of financial performance of a bank as it results in decreasing margin and higher provisioning requirement for doubtful debts. Various banks from different categories together provide advances to different sectors, which require pre-sanctioning appraisal and post-disbursement control to contain the increasing NPAs in Indian Banking. The reduction in NPAs is necessary to improve profitability of banks and comply with the capital adequacy norms as per the Basel Accord.

Thiagarajan, Ayyappan and Ramachandran (2011) analyzed the role of market discipline on the behaviour of commercial banks with respect to their capital adequacy. The study showed that the Capital Adequacy Ratio (CAR) in the Indian Commercial Banking sector shows that the commercial banks are well capitalized and the ratio is well over the regulatory minimum requirement. The private sector banks show a higher percentage of Tier-I capital over the public sector banks. However the public sector banks show a higher level of Tier-II capital. The study indicates that market forces influence the banks' behaviour to keep their capital adequacy well above the regulatory norms. The NPAs significantly influenced the cost of deposits for both public and private sector banks. The return on equity had a significant positive influence on the cost of deposits for private sector banks. The public sector banks can reduce the cost of deposits by increasing their Tier-I capital.

Given this background, it is interesting to see how the Indian banking sector has done in terms of soundness in the post reforms era. In a quest to seek an answer, the present study is undertaken with specific research objectives as envisaged in the following section.

OBJECTIVES, HYPOTHESES AND RESEARCH METHODOLOGY**OBJECTIVES OF THE STUDY**

The main objective of the study is to examine the impact of banking sector reforms on the soundness of Indian banking. In this broader framework, the following are the specific objectives of the study:

1. To have a brief an overview of the reforms initiated after 1991 in Indian banking sector.
2. To analyze the impact of reforms on the asset quality of Indian banks.
3. To examine the impact of reforms on the capital adequacy requirements of Indian banks.

RESEARCH HYPOTHESES

To achieve the above objectives of the study, the following hypotheses are formulated and tested:

1. There is no significant difference in the group-wise/year-wise asset quality of the public, private and foreign banks in India.
2. There is no significant difference in the group-wise/year-wise capital adequacy of the public, private and foreign banks in India.

RESEARCH METHODOLOGY

To achieve the objectives of the study, the use is made of secondary data collected from the various sources like Report on Trends and Progress of Banking in India, Indian Banking Year Book, Performance Highlights of Public, Private and Foreign Banks in India, various journals such RBI Bulletin, IBA Bulletin, Professional Banker, Chartered Financial Analyst, ICFAI Journal of Bank Management and various websites. To test the statistical significance, ANOVA technique is used.

REFORMS INITIATED AFTER 1991

A brief overview of some of the reforms initiated in Indian banking after 1991 is as under:

MERGERS

In regard to the structure of the banking system, the Committee was of the view that the banks be restructured by creating 3-4 large banks (including SBI), which would become international in character, 8-10 national banks with network of branches throughout the country engaged in universal banking, local banks whose operations would be generally confined to a specific region, and rural banks whose operations would be confined to the rural areas and whose business would be predominantly engaged in financing of agriculture and allied activities. No doubt, some mergers took place in private sector but no progress in this respect has been made in case of public sector banks except that a loss-making bank; NEWBK has been merged with PNB in 1993.

PHASING OUT DIRECTED CREDIT

Priority sector should be redefined and the target for this redefined sector should be fixed at 10 per cent of aggregate credits, subject to taking a review after 3 years. The Government has decided not to reduce the level of priority sector lending from 40 per cent, although the priority sector definition has been enlarged to include certain categories of advances, which were hitherto not a part of priority sector earlier.

TRANSPARENCY

The Committee recommended that the balance sheets of the banks and financial institutions should be made transparent and full disclosures be made in the balance sheets as recommended by the International Accounting Standards Committee. Accordingly, RBI modified the format w.e.f. March 1992 and the banks are preparing their balance sheets as per the modified format. During 1996-97, more significant additions such as break-up of CAR, provisions made for the year, NPA percentage, etc. were introduced. During 1998, the banks have been further directed to disclose seven critical ratios relating to productivity and profitability: Capital Adequacy Ratio-Tier-I and Tier-II, Net NPAs to Net Advances, Interest Income to Working Funds, Non-Interest Income to Working Funds, Operating Profits to Working Funds, Return on Assets, Business per Employee and Profit per Employee. The Accounting Standards AS-17, AS-18, AS-21 and AS-22 were also made applicable to banks, w.e.f. 31.03.2003.

CUSTOMER SERVICE

Banking Ombudsman Scheme 1995 was introduced in June 1995 which was revised by RBI and came into force from 1st January 2006. The extent and scope of the new scheme is wider than the earlier scheme. The new scheme also provides for online submission of complaints. The new scheme additionally provides for the institution of an appellate authority for providing scope for appeal against an award passed by Ombudsman both by the bank as well as the complainant. Banks are advised to frame their KYC policies with the approvals of their Boards by incorporating the following four key elements (i) Customer Acceptance Policy, (ii) Customer Identification Procedures, (iii) Monitoring of Transaction and (iv) Risk Management as required by the Prevention of Money Laundering Act.

TECHNOLOGY

The Committee endorsed the view of the Rangarajan Committee on Computerization that there is urgent need for a far greater use if computerization has to be recognized as an indispensable tool for improvement in customer service, the institution and operation of better control systems, greater efficiency in information technology and the betterment of the work environment for employees.

NEW PRIVATE BANKS

New generation private sector banks, such as HDFC Bank, ICICI Bank, AXIS Bank, Centurion Bank of Punjab Ltd., Development Credit Bank Ltd., IndusInd Bank Ltd., Kotak Mahindra Bank Ltd., Yes Bank Ltd., etc. have been established, which provided an era of bank automation and the culture of remunerative banking business.

DEREGULATION OF INTEREST RATES

Interest rates, both on the deposits and advances were deregulated moving away from the administered structures.

PHASED REDUCTION OF STATUTORY PRE-EMPTIONS

In line with the Government's decision to reduce the fiscal deficit to a level of consistent with macro-economic stability, Cash reserve ratio (CRR) and Statutory Liquidity Ratio (SLR) were reduced in a phased manner.

PRUDENTIAL NORMS

Norms for income recognition, asset classification and provisioning besides capital adequacy were introduced gradually in a phased manner.

LOAN RECOVERY

To create more conducive recovery climate among the borrowers and profitability of banks through better recoveries, the RBI and the Central Government have initiated several institutional measures, which include Debt Recovery Tribunals (DRTs), Lok Adalats, Asset Reconstruction Companies (ARCs), Corporate Debt Restructuring (CDR) Mechanism, Settlement Advisory Committees (SACs) have also been formed at the regional and head office levels of commercial banks. Furthermore, the banks can also issue notices under SARFAESI Act, 2002 for enforcement of security interest without intervention of the courts.

OTHER REFORMS

Further, there are other reforms and regulations in the banking sector like rationalization of branches, linkage of branch licensing policy to performance, dismantling of centralized recruitment system - Banking Services Recruitment Board for Public Sector Banks and implementation of voluntary retirement schemes for PSBs under which about one lakh employees have been retired following staff redundancy on account of large scale automation.

Banking reforms, in India, were imaginatively sequenced: the first priority was given to the prudential norms, supervisory oversight and risk management policies. Later, deregulations of interest rates, reduction in statutory pre-emption were introduced. Subsequently, corporate governance practices were introduced so that the banks hold themselves responsible not only for the stockholders, but for all the stakeholders in a regime of sound audit, accounting and financial reporting standards.

IMPACT OF REFORMS ON SOUNDNESS OF INDIAN BANKING

To study the impact of reforms on the soundness of Indian banking, two parameters are taken i.e. Asset Quality and Capital Adequacy.

ANALYSIS OF ASSET QUALITY

The RBI issued guidelines to banks regarding the classification of advances between performing and non-performing assets. An asset becomes non-performing when it ceases to generate income to the bank for a certain period. NPA is defined as any credit facility (Term Loans, Cash Credits and Overdrafts, Bills Purchased and Discounted and other accounts) in respect of which interest remained past due for a period of four quarters during the year ending 31st March 1993, three quarters during the year ending 31st March, 1994 and two quarters (180 days) during the year ending 31st March 1995. With a view to moving towards international best practices and to ensure greater transparency, one-quarter (90 days) overdue norm for identification of NPAs has been adopted from 31st March, 2004. As a facilitating measure for smooth transition to 90 days norm, the banks have moved over to charging interests at monthly rests since April 2002 in place of the quarterly rests. The policy of income recognition is not to consider interest income from NPAs on accrual basis, but to consider such income as when it is actually received. Interest realized on the NPAs may be taken into account provided the credits in the accounts towards interest are not out of fresh/additional credit facilities sanctioned to the borrower concerned. Interest accrued and credited to income account in a prior accounting period with respect to NPAs should be reversed or provided for in the current accounting period, if the same is not realized.

The banks are required to classify their advances into four broad groups: (a) Standard Assets, (b) Sub-standard Assets, (c) Doubtful Assets and (d) Loss Assets. This classification should be done only after taking into consideration the degree of well defined credit weaknesses and the extent of dependence on the collateral security for realization of dues. Taking into account the time lag between accounts becoming doubtful of recovery, their recognition as such, the realization of security and erosion overtime in the value of security charged to the banks, it has been decided that the banks should make provision against loss assets, doubtful assets, sub-standard assets and standard assets as per the provisions of RBI.

Table-1 shows that ratio of net NPAs to total assets registered a declining trend during the period under study. It declined from 3.0 per cent (1997-98) to 0.7 per cent (2009-10) in SCBs. The decrease is more in public sector banks (PSBs) followed by old public sector banks (Old PSIBs) than new private sector Indian banks (New PSIBs) and foreign banks (FBs). Bank group-wise calculated F-ratio (3.86) is greater than critical ratio (2.52) and likewise, year-wise calculated F-ratio (6.20) is greater than the critical ratio (1.94) at 5 per cent level of significance. *Therefore, the null hypothesis that there is no significant difference in group-wise/year-wise asset quality of the public, private and foreign banks can't be accepted.*

Similar trend is observed in ratio of net NPAs to net advances as exhibited in table-2 where the ratio declined from 7.3 per cent (1997-98) to 1.1 per cent (2009-10). Again, the decrease is more in public sector banks (PSBs) followed by old public sector banks (Old PSIBs) than new private sector Indian banks (New PSIBs) and foreign banks (FBs). Bank group-wise calculated F-ratio (2.72) is greater than critical ratio (2.52) and likewise, year-wise calculated F-ratio (8.34) is greater than the critical ratio (1.94) at 5 per cent level of significance. *Therefore, the null hypothesis that there is no significant difference in group-wise/year-wise asset quality of the public, private and foreign banks can't be accepted.*

The ratio of standard assets to total advances registered a rising trend as presented in table-3 where it increased from 84.3 per cent (1996-97) to 97.6 (2009-10) in SCBs. The increase is more in PSBs than Old PSIBs. This ratio remains almost at the same level in old PSIBs and FBs during the period under study. Bank group-wise calculated F-ratio (3.39) is greater than critical ratio (2.52) and likewise, year-wise calculated F-ratio (6.26) is greater than the critical ratio (1.94) at 5 per cent level of significance. *Therefore, the null hypothesis that there is no significant difference in group-wise/year-wise asset quality of the public, private and foreign banks can't be accepted.*

The ratio of sub-standard assets to total advances registered a declining trend as presented in table-4 where it declined from 4.8 per cent (1996-97) to 1.2 per cent (2009-10) in SCBs. The decrease is more in PSBs than Old and New PSIBs. This ratio remains almost at the same level in FBs during the period under study. Bank group-wise calculated F-ratio (0.45) is less than critical ratio (2.52), *therefore, the null hypothesis that there is no significant difference in group-wise asset quality of the public, private and foreign banks is accepted.* Likewise, year-wise calculated F-ratio (15.56) is greater than the critical ratio (1.94) at 5 per cent level of significance, *therefore, the null hypothesis that there is no significant difference in year-wise asset quality of the public, private and foreign banks can't be accepted.*

The ratio of doubtful assets to total advances registered a declining trend as presented in table-5 where it declined from 9.0 per cent (1996-97) to 0.94 per cent (2009-10) in SCBs. The decrease is more in PSBs than Old PSIBs. This ratio remains at the same level in new PSIBs and FBs during the period under study. Bank group-wise calculated F-ratio (7.59) is greater than critical ratio (2.52) and likewise, year-wise calculated F-ratio (2.83) is greater than the critical ratio (1.94) at 5 per cent level of significance. *Therefore, the null hypothesis i.e. there is no significant difference in group-wise/year-wise asset quality of the public, private and foreign banks can't be accepted.*

Similar trend is observed in ratio of loss assets to total advances as exhibited in table-6 where the ratio declined from 1.9 per cent (1996-97) to 0.24 per cent (2009-10). Again, the decrease is more in PSBs followed by Old PSIBs than New PSIBs) and FBs. Bank group-wise calculated F-ratio (4.94) is greater than critical ratio (2.52) and likewise, year-wise calculated F-ratio (4.46) is greater than the critical ratio (1.94) at 5 per cent level of significance. *Therefore, the null hypothesis that there is no significant difference in group-wise/year-wise asset quality of the public, private and foreign banks can't be accepted.*

The percentage change in net NPAs in various groups of banks is presented in table-7. The net NPAs increased to 159 per cent in 2001-02, then declined to 83 per cent in 2005-06 and registered a rising trend afterwards and reached to 175 per cent in 2009-10 in SCBs. The same trend is observed in PSBs and other groups of banks also. But more than hundred per cent increase in absolute net NPAs during the last five years clearly shows the impact of global crisis in the Indian banking as well. *But as a whole, the improvement in asset quality in relative terms is satisfying and is almost at par with the banks in other countries.*

ANALYSIS OF CAPITAL ADEQUACY

The question of building up adequate level of capital and resources in PSBs did not receive enough attention in the past. The Government ownership of the banks, commanding about 90 percent of the business, was considered adequate for maintaining public confidence. The level of international banking business was also limited and there was little pressure to conform to the international norms. More importantly, with low level of profits, the banks could not plough back adequate resources to shore up their net worth. As far back as 1961, the RBI had advised the banks to aim at a ratio of 6 percent of paid-up capital and reserves to total deposits because banks had been increasing their assets without a corresponding augmentation of their capital base. The ratio had declined from 9 percent in 1950 to 4 percent in 1960 and further to 1.5 percent by 1978 (for PSBs). Since income was recognized on accrual basis rather than on actual recovery of cash and banks were not required to make sufficient provisions for non-performing loans (the system of classifying advances as per health code was itself subjective), the actually deteriorating financial health of banks did not get reflected in banks' balance-sheets. In addition, the recession in the industrial sector increased industrial sickness, which added to the burden on the financial sector. It was only after the introduction of prudential and accounting norms in 1992-93 following the Ghosh Committee recommendations did the losses show up clearly on banks' balance sheets. By 1992-93, 20 nationalized banks (now 19 after the merger of NEWBK with PNB in 1993-94) reported combined losses of Rs.3648.92 crore with equity nearly being wiped out or becoming negative in case of several banks. Against this, the Government accepted the Narasimham Committee recommendations for adoption of the BIS norms on capital adequacy to improve the financial health of the banks and enable them to compete both at home and abroad. The RBI introduced the norms in a phased manner from April 1992, covering all banks (PSBs, PSIBs and FBs) by March 1996.

The Committee on Banking Regulations and Supervisory Practices (Basel Committee or Basel-I) in July 1988 released a framework on international convergence of capital measure and capital standards. The fundamental objectives that underline the Committee's work on capital convergence were: firstly, that the new framework shall serve to strengthen the soundness and stability of the banking system, and secondly, the framework shall be fair and for a high degree of consistency in its application to banks in different countries with a view to ensure equality among the international banks. The Basle Committee has defines capital in two tiers: Tier-I and Tier-II. Tier-I capital, otherwise known as core capital, provides the most permanent and rapidly available support to a bank against unexpected losses, whereas Tier-II capital contains elements that are less permanent in nature or less rapidly available.

In order to strengthen the capital base of Indian banks, RBI introduced in April 1992, a system of assigning risk weights for different kinds of assets and relating capital strength to Risk Weighted Assets (RWA) of commercial banks. Capital Adequacy Ratio is defined as ratio of Capital Funds to Risk Weighted Assets. It was stipulated that all the Indian banks with international presence should the achieve Capital Adequacy Ratio (CAR) of 8 percent by 31st March, 1994 (later extended

to 31st March, 1995), foreign banks by 31st March 1993, other banks to achieve 4 percent by 31st March, 1993 and 8 percent by 31st March, 1996. Although it only addressed credit risk, it reflected the thinking that the amount of the capital required to protect against losses in an asset should vary depending upon the riskiness of the asset. In 1996, market risk was added as an area for which capital was required.

The banking industry has changed in many ways since the implementation of Basel-I in 1988. Two specific changes - the expanded use of securitization and derivatives in secondary markets, and vastly improved risk-management systems had significant implications for Basel-I. It has been criticized to be a "one size fits all" model, lacking in sophisticated measurement and management of risks. The capital regime recommended by Basel-I could not keep pace with either due to the complex nature of the operations of the large banks or the substantial changes in both the concepts and technology of risk management. It has also been criticized as being inflexible due to its focus on primarily credit risk, ignoring market risk and operational risk and treating all types of borrowers under one risk category regardless of credit worthiness.

From 1993-2003, the government for the purpose of recapitalization pumped Rs. 20446.12 crores, which is an indication of the extent of capital erosion faced by the banks in post reforms period. The experience of bank recapitalization in several parts of the world has demonstrated that the exercise of recapitalization does not necessarily prevent banks from getting into trouble again. Recapitalization of weak banks using public money is also a costly and unsustainable option in view of the increasing strains on the government exchequer. The State Bank of India Act 1955 was amended to enhance the scope of the provision for partial private shareholding. The Banking Companies (Acquisition and Transfer of Undertakings) Acts 1970/1980 have also been amended in order to enable the public to subscribe to the capital of nationalized banks to 49 per cent of their total capital. The Governments' decision to reduce its equity stake in PSBs to 33 percent while retaining the public sector characteristics is an enabling provision for the banks to access the capital market in case of need. Therefore, the issues arise how much should be the adequate capital? Having achieved the capital adequacy ratio, will the PSBs, especially the nationalized banks, be able to sustain it? Should all the banks hold the same level of capital or should the weaker banks be asked to hold more? Moreover, in focusing too narrowly on capital alone as a measure of banks' health, there is a danger of overlooking other important aspects of banks' well being. Therefore, capital should be regarded as a part of overall risk management and there is a need to evolve a single measure that will help the banks to judge the right amount of capital to cover all the risks being faced by the banks.

The Basel Committee on Banking Supervision (BCBS) released the New Basel Capital Accord (Basel-II) in July 2003, applicable to all member countries from January 1, 2007 and India is no exception. It aims to ensure effective risk management and security systems in the financial sector with a greater emphasis in banks. The improved capital adequacy framework is more intended towards fostering a strong emphasis on risk management and encouraging ongoing improvements in the risk assessment capabilities of a bank. The framework of Basel II can be viewed from a three-pillar format. The first pillar is compatible with the credit risk, market risk and operational risk. The minimum regulatory capital (MRC) focused on these three risks. The second pillar gives the bank responsibility to exercise best ways to manage the risk specific to that bank. The third pillar emphasize on market discipline for greater transparency, disclosure and encouraging best international practices.

The primary objective of Basel-II is to introduce greater risk sensitivity into the calculation of the amount of capital that a bank needs to hold. The revised Accord has retained the current definition of capital i.e. Tier-I, Tier-II and Tier-III capital. Tier-I Capital (Core Capital) include Paid up capital, Disclosed free reserves (statutory reserves, share premium, other revenue reserves), Capital reserve (surplus from sale of capital assets) and unallocated surplus (P & L balance carried over). Tier-II Capital include Undisclosed reserves and cumulative perpetual preference shares, Revaluation reserves (at discount of 55 percent), Investment fluctuation reserve, General provisions and loss reserves (up to a maximum of 1.25 percent risk weight assets), Hybrid debt capital instruments and Subordinated debt (maturity of above 5 years, fully paid-up, unsecured, subordinate to claims of other creditors, not redeemable at the initiative of the holder or without the consent of RBI). Tier-I capital should not be less than 50 percent of total capital. Tier-II capital cannot exceed 100 percent of Tier-I capital. Investment by banks in the subordinated debt of other banks should not exceed 10 percent of a bank's capital funds and will carry 100 percent risk weight. Tier-III Capital has the same characteristics of subordinated debt as in Tier-II Capital except for original maturity of at least 2 years and lock in clause i.e. no repayment if bank fails in its minimum capital requirement. Tier-III capital is limited to 250 percent of Tier-I capital. Unused Tier-I capital may be substituted for Tier-III up to the limit of 250 percent.

The Minimum Regulatory Capital (MRC) is set by the Capital Ratio which is defined as "(Total Capital -Tier-I + Tier-II + Tier-III)/(Credit Risk + Market Risk + Operational Risk)". Basel-I provided for only a credit risk charge. A market risk charge was implemented in 1996. The Committee has proposed operational risk capital of 12 per cent of minimum regulatory capital is provided i.e., MRC will be 9 per cent + 12 per cent of 9 per cent i.e. 10.08 per cent. In this ratio, the denominator represents the bank's assets weighted according to the three separate types of risk: *Credit Risk* - the risk of loss to the bank due to failure of borrowers/ counter-parties in meeting their commitments, *Market Risk* - the risk associated with market fluctuations in instruments such as futures, options, foreign exchange, etc. and *Operational Risk* - the risk of loss resulting from inadequate or failed internal processes, people and systems, or from external events.

Table 8 clearly shows that the ratio of capital to risk weighted assets registered a rising trend and increased from 11.5 per cent (1997-98) to 13.6 per cent (2009-10) in commercial banks in India, which is above the internationally accepted standards. But this ratio is higher in new private sector Indian banks (PSIBs) and foreign banks (FBs) than the public sector banks (PSBs) and old private sector Indian banks (Old PSIBs). The ratio increased from 10.3 to 12.1 in nationalized banks, from 11.6 to 12.1 in public sector banks, from 12.3 to 13.8 in old private sector Indian banks, from 13.2 to 17.3 in new private sector Indian banks, from 10.3 to 18.1 in foreign banks during the period of 1997-98 to 2009-10. However in SBI group, this ratio decreased from 14.0 to 12.1 during the same period. Bank group-wise calculated F-ratio (2.91) is greater than critical ratio (2.34) and likewise, year-wise calculated F ratio (2.53) is greater than the critical ratio (1.90) at 5 per cent level of significance. Therefore, the null hypothesis that there is no significant difference in group-wise/year-wise ratio of capital to risk weighted assets in public, private and foreign banks can't be accepted.

In view of the financial crisis at the international level, the issues still exists, i.e. Having achieved the capital adequacy ratio, will the PSBs, especially the nationalized banks, be able to sustain in the new regime? Should all the banks hold the same level of capital or should the weaker banks be asked to hold more? These issues clearly show that there is a need of third generation reforms in Indian banking to face the challenges of crisis at the international level.

CONCLUSIONS AND POLICY IMPLICATIONS

Both the parameters, i.e. capital adequacy and asset quality, have shown a significant improvement over the years in all the groups of the banks. The capital adequacy ratio is above the stipulated level and the quality of the assets has also improved over a period of time. Therefore, it can be concluded that banking reforms have indeed transformed Indian banks into strong, stable and prosperous entities. Indian banking system can now claim that their NPA levels are of international standards, with prudential provisioning, classification and an adequate capital base. But effective cost management, recovery management, technological intensity of banking, governance and risk management, financial inclusion are the areas, which will have a key bearing on the ability of Indian banks to remain competitive and enhance soundness. In this paradigm, improvement in policy framework, regulatory regime, market-perceptions, and indeed, popular sentiments relating to governance in banks need to be on the top of the agenda to serve the society's needs and realities while being in harmony with the global perspective.

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TABLES

TABLE 1: RATIO OF NET NPAS TO TOTAL ASSETS

Year	PSBs	Old PSIBs	New PSIBs	FBS	SCBs
1997-98	3.3	2.9	1.1	1.0	3.0
1998-99	3.5	3.6	1.6	1.1	2.9
1999-00	2.5	3.3	1.1	1.0	2.7
2000-01	2.7	3.3	1.2	0.8	2.5
2001-02	2.4	3.2	2.1	0.8	2.3
2002-03	1.3	2.6	2.2	0.8	1.9
2003-04	1.3	1.8	1.1	0.7	1.2
2004-05	1.0	1.4	0.8	0.4	0.9
2005-06	0.7	0.9	0.4	0.4	0.9
2006-07	0.6	0.6	0.5	0.3	0.6
2007-08	0.6	0.4	0.7	0.3	0.6
2008-09	0.6	0.5	0.8	0.7	0.6
2009-10	0.7	0.6	0.5	0.7	0.7

Anova Value (F-ratio): Bank group-wise: 3.86 (significant at 5% level), Year-wise: 6.20 (significant at 5% level).

Source: Compiled from Performance Highlights of Various Banks, IBA, Mumbai.

TABLE 2: RATIO OF NET NPAS TO NET ADVANCES

Year	PSBs	Old PSIBs	New PSIBs	FBS	SCBs
1997-98	8.2	6.5	2.6	2.2	7.3
1998-99	8.1	9.0	4.5	2.9	7.6
1999-00	6.8	7.1	2.9	2.4	6.8
2000-01	6.7	7.3	3.1	1.8	6.2
2001-02	5.8	7.1	4.9	1.9	5.5
2002-03	4.5	5.5	4.6	1.8	4.4
2003-04	3.0	3.8	2.4	1.5	2.9
2004-05	2.1	2.7	1.9	0.9	2.0
2005-06	1.3	1.6	0.8	0.8	1.2
2006-07	1.1	1.0	1.0	0.7	1.0
2007-08	1.0	0.7	1.2	0.8	1.0
2008-09	0.9	0.9	1.4	1.8	1.1
2009-10	1.1	0.8	1.1	1.8	1.1

Anova Value (F-ratio): Bank group-wise: 2.72 (significant at 5% level), Year-wise: 8.34 (significant at 5% level).

Source: Compiled from Performance Highlights of Various Banks, IBA, Mumbai.

TABLE 3: RATIO OF STANDARD ASSETS TO TOTAL ADVANCES

Years	PSBs	Old PSIBs	New PSIBs	FBs	SCBs
1996-97	82.2	89.3	97.4	95.9	84.3
1997-98	84.0	89.1	96.5	93.6	85.6
1998-99	84.1	86.9	93.8	92.4	85.3
1999-00	86.0	88.8	95.9	93.0	87.2
2000-01	87.6	88.7	94.9	93.1	88.6
2001-02	88.9	89.0	91.2	94.5	89.6
2002-03	90.6	91.1	92.4	94.7	91.2
2003-04	92.2	92.4	95.0	95.2	92.8
2005-06	96.2	95.6	98.3	98.0	96.7
2006-07	97.3	96.9	98.1	98.1	97.5
2007-08	97.8	97.7	97.5	98.1	97.7
2008-09	98.0	97.6	96.9	95.7	97.7
2009-10	97.8	97.7	97.1	95.4	97.6

Anova Value (F-ratio): Bank group-wise: 3.39 (significant at 5% level), Year-wise: 6.26 (significant at 5% level).

Source: Compiled from Performance Highlights of Various Banks, IBA, Mumbai.

TABLE 4: RATIO OF SUB-STANDARD ASSETS TO TOTAL ADVANCES

Years	PSBs	Old PSIBs	New PSIBs	FBs	SCBs
1996-97	5.1	5.5	2.1	2.4	4.8
1997-98	5.1	5.5	3.3	3.9	4.9
1998-99	4.9	6.6	5.2	4.0	5.0
1999-00	4.3	4.5	2.5	2.9	4.1
2000-01	3.3	4.1	3.1	1.9	3.3
2001-02	3.1	4.2	3.8	1.7	3.1
2002-03	2.6	2.9	2.9	1.8	2.6
2003-04	2.6	2.0	1.6	1.6	2.3
2004-05	1.3	1.1	1.1	0.9	1.2
2005-06	1.0	0.8	0.7	1.0	1.0
2006-07	1.0	0.8	1.1	1.1	1.0
2007-08	1.0	0.7	1.6	1.2	1.1
2008-09	0.9	1.1	2.0	3.5	1.2
2009-10	1.1	0.9	1.5	2.9	1.2

Anova Value (F-ratio): Bank group-wise: 0.45 (insignificant), Year-wise: 15.56 (significant at 5% level).

Source: Compiled from Performance Highlights of Various Banks, IBA, Mumbai

TABLE 5: RATIO OF DOUBTFUL ASSETS TO TOTAL ADVANCES

Years	PSBs	Old PSIBs	New PSIBs	FBs	SCBs
1996-97	10.7	4.1	0.0	0.9	9.0
1997-98	9.1	4.2	0.1	0.8	7.7
1998-99	9.0	5.0	0.9	1.6	7.8
1999-00	8.0	5.8	1.3	2.1	7.1
2000-01	7.6	6.2	2.0	2.6	6.8
2001-02	6.6	6.1	4.9	2.0	6.0
2002-03	5.6	5.4	3.9	1.7	5.1
2003-04	4.3	4.7	3.1	1.8	4.0
2004-05	3.5	4.1	2.4	1.3	3.3
2005-06	2.2	3.0	0.8	0.7	2.0
2006-07	1.4	1.9	0.7	0.5	1.2
2007-08	1.1	1.2	0.8	0.5	1.0
2008-09	0.9	1.0	0.8	0.6	0.9
2009-10	0.9	1.0	1.0	0.9	0.94

Anova Value (F-ratio): Bank group-wise: 7.59 (significant at 5% level), Year-wise: 2.83 (significant at 5% level).

Source: Compiled from Performance Highlights of Various Banks, IBA, Mumbai.

TABLE 6: RATIO OF LOSS ASSETS TO TOTAL ADVANCES

Years	PSBs	Old PSIBs	New PSIBs	FBs	SCBs
1996-97	2.1	1.1	0.8	0.9	1.9
1997-98	1.9	1.3	0.2	1.7	1.8
1998-99	2.0	1.4	0	2.0	1.9
1999-00	1.7	1.0	0.4	1.9	1.6
2000-01	1.5	1.0	0.0	2.3	1.4
2001-02	1.4	0.8	0.0	1.8	1.2
2002-03	1.2	0.6	0.9	1.8	1.2
2003-04	0.9	0.9	0.3	1.5	0.8
2004-05	0.7	0.8	0.3	0.7	0.6
2005-06	0.5	0.6	0.2	0.5	0.4
2006-07	0.3	0.4	0.2	0.3	0.3
2007-08	0.2	0.3	0.2	0.2	0.2
2008-09	0.2	0.3	0.2	0.3	0.2
2009-10	0.2	0.4	0.3	0.5	0.24

Anova Value (F-ratio): Bank group-wise: 4.94 (significant at 5% level), Year-wise: 4.46 (significant at 5% level).

Source: Compiled from Performance Highlights of Various Banks, IBA, Mumbai.

TABLE 7: PERCENTAGE CHANGE IN NET NPAS (Rs. in Crore)

Year	PSBs		Old PSIBs		New PSIBs		FBs		SCBs	
1996-97	20285	100	1245	100	161	100	671	100	22362	100
1997-98	21232	105	1572	126	291	181	666	99	23761	106
1998-99	24211	119	2332	187	611	380	866	129	28020	125
1999-00	26187	129	2393	192	638	396	855	127	30073	134
2000-01	27977	138	2771	223	929	577	785	117	32462	145
2001-02	27958	138	3013	242	3663	2275	920	137	35554	159
2002-03	24867	123	2740	220	4142	2573	921	137	32670	146
2003-04	18860	93	2140	172	2717	1688	900	134	24617	110
2004-05	16642	82	1859	149	2292	1424	648	97	21441	96
2005-06	14566	72	1368	110	1796	1114	808	120	18543	83
2006-07	15145	75	891	72	3137	1948	927	138	20101	90
2007-08	17836	88	740	59	4907	3048	1250	186	24734	109
2008-09	21033	104	1165	94	6253	3884	2996	447	31564	141
2009-10	29644	146	1271	102	5234	3251	2975	443	39126	175

Source: Compiled from Performance Highlights of Various Banks, IBA, Mumbai.

TABLE 8: BANK GROUP-WISE CAPITAL FUNDS TO RISK-WEIGHTED ASSETS RATIO

Year	SBI Group	Nationalized	PSBs	Old PSIBs	New PSIBs	FBs	Total
1997-98	14.0	10.3	11.6	12.3	13.2	10.3	11.5
1998-99	12.3	10.3	11.3	12.1	11.8	10.8	11.3
1999-00	11.6	10.1	10.7	12.4	13.4	11.9	11.1
2000-01	12.7	10.2	11.2	11.9	11.5	12.6	11.4
2001-02	13.3	10.9	11.8	12.5	12.3	12.9	12.0
2002-03	13.4	12.2	12.6	12.8	11.3	15.2	12.7
2003-04	13.4	13.1	13.2	13.7	10.2	15.0	12.9
2004-05	12.4	13.2	12.9	12.5	12.1	14.0	12.8
2005-06	12.3	12.2	12.2	11.7	12.6	13.0	12.3
2006-07	12.3	12.4	12.4	12.1	12.0	12.4	12.3
2007-08	13.2	12.1	12.5	14.1	14.4	13.1	13.0
2008-09	12.7	12.1	12.3	14.3	15.1	15.1	13.2
2009-10	12.1	12.1	12.1	13.8	17.3	18.1	13.6

Anova Value (F-ratio): Bank group-wise: 2.75 (significant at 5% level), Year-wise: 3.45 (significant at 5% level).

Source: Compiled from Performance Highlights of Various Banks, IBA, Mumbai.

ASSURING QUALITY USING 6 SIGMA TOOL - DMAIC TECHNIQUE

ANOOP C NAIR

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ABSTRACT

In today's world, customer is the driving force and their requirements are changing very constantly. That's the reason why, manufacturing units uses automated manufacturing processes for achieving high flexibility in production. Assuring quality on output from automated manufacturing process is becoming highly necessary now a days, as an error will have a huge volume of defective products to customers. Though many academic & research studies discusses on various tools in assuring quality, there are no standard set of procedures which needs to be followed for automated manufacturing process to achieve a quality output. This paper presents a case study on how a leading fuel injection equipment manufacturer eliminate its customer complaint using an automated manufacturing process which they obtained from a UK based manufacturer. The selection of that process is through the 6 Sigma Tool - DMAIC Technique & in this paper, it discusses on how transnational business (using two automated manufacturing processes) helps in achieving the result. This study is based on a wide variety of experimental and practical approaches, that have been now prevailing in the industry. The paper also discusses studies that show how it affects the performance of the particular industry and it concludes with a discussion of how, understanding quality tools can bring closer, some aspects of assuring quality through automated manufacturing processes.

KEYWORDS

Case Study, Two Automated Manufacturing Processes, 6 Sigma Tool - DMAIC Technique

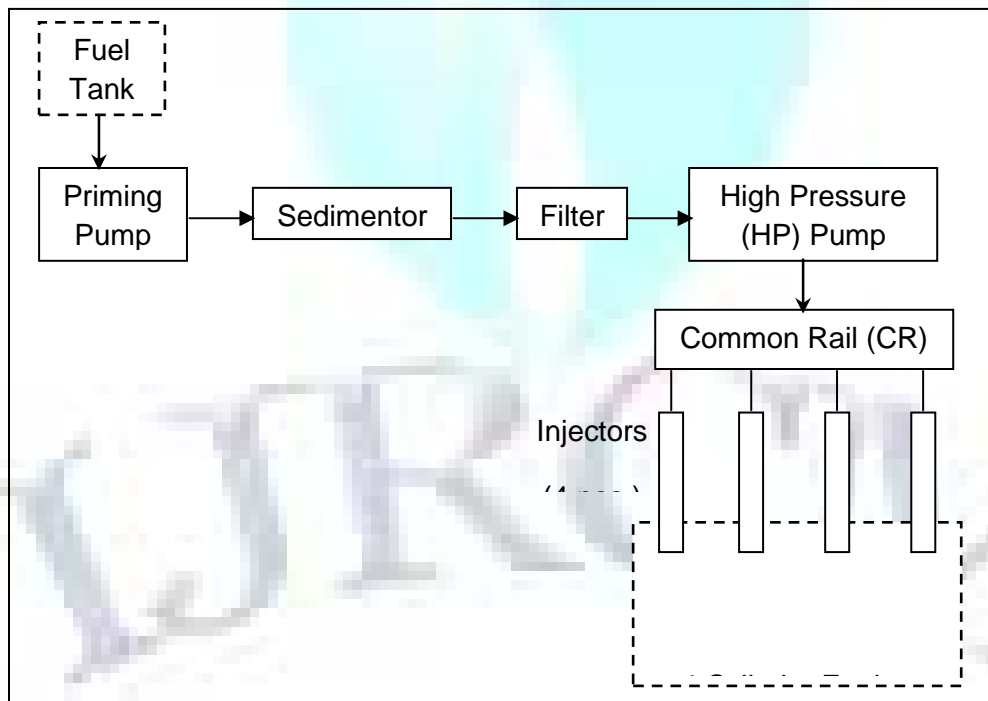
INTRODUCTION

In the initial stages on introduction of Common Rail Direct Injection (CRDi) application, the fuel injection equipment (fie) manufacturers have to had a tough call from the customers. In order to achieve stringent emission norms, fuel injection manufacturers need to have better spray from the injectors & it is only possible by reducing the diameter of the injector bore (diameter) size. Since the bore size is only 150 μm (0.15 mm), there was a high risk of injector blockage & in fact in some cases it reaches the customer. In this paper, a case study is being mentioned, on how the fuel injection manufacturers came out of the situation using an automated manufacturing process (explained with the help of 6 sigma tool - DMAIC technique).

DETAILS ON FUEL INJECTION EQUIPMENT (FIE) PARTS

The product layout in the original vehicle condition is as mentioned in the table below. In that except fuel tank & 4 cylinder engine block, all other parts come under FIE

FIGURE - 1



LOW PRESSURE LINE

1. Priming Pump: It is used to remove the air blocks, just by priming this part. The air blockage is only be there when the fuel (diesel) get emptied completely.
2. Sedimentor: It is used to remove the water content present in the fuel. It is an optional part. In some area, there seems to be more water content in the fuel. In those areas it is highly advisable to use this.
3. Filter: This is used to remove the contaminants from the fuel. It is highly required as any contaminant above 150 μm (0.15 mm) will block the injector.

HIGH PRESSURE LINE

1. High Pressure pump: It is also referred to as an HP Pump. Its main function is to produce a pressurize fuel to almost 1500 bar pressure

2. Common Rail (CR): It acts as an accumulator. It keeps the pressurized fuel from HP pump & will guide to injector in correct timing through a sensor.
3. Injector: It is used to spray the pressurized fuel to engine block, where the combustion takes place.

DMAIC TECHNIQUE

DMAIC (Define, Measure, Analyze, Improve, & Control) is an acronym that can be defined as the roadmap to process optimization and are the five phases of Six Sigma improvement.

D-M-A-I-C is structured as:

Define: Define the Customer, their Critical to Quality (CTQ) issues, and the Core Business Process involved.

Measure: Measure the performance of the Core Business Process involved.

Analyze: Analyze the data collected and process map to determine root causes of defects and opportunities for improvement.

Improve: Improve the target process by designing creative solutions to fix and prevent problems.

Control: Control the improvements to keep the process on the new course.

DEFINE

Fuel Injection Equipment (FIE) manufacturers get a tough call from the customers for some of the problems identified at their end. So, they decided to have a quality overview through 6 sigma quality initiative - DMAIC Technique. They define to eliminate / reduce the customer claims by increasing the product quality, which in turn will increase the customer satisfaction & also the sales order.

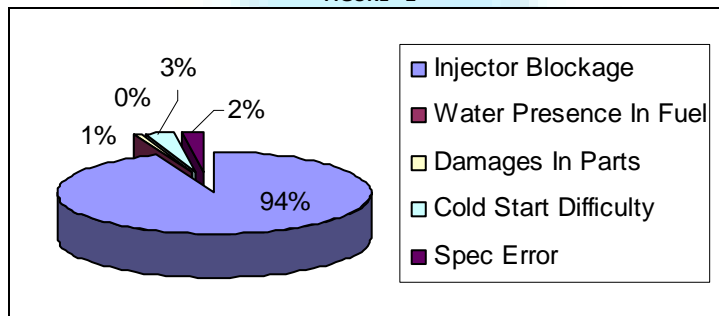
To start with, please refer the below mentioned problems which FIE manufacturers encountered from the previous year.

TABLE - 1

S. No	Customer Problem	Count / Cases	Claim Amt Per Count	Total Claim Amt
1	Injector Blockage	20	\$ 500	\$ 10,000
2	Water Presence In Fuel	2	External Factor	
3	Damages In Parts	1	\$ 100	\$ 100
4	Cold Start Difficulty	3	\$ 100	\$ 300
5	Spec Error	1	\$ 250	\$ 250
Total				\$ 10,650

From the table, it is evident that number of problems from injector blockage is higher than the other claims. The claim amount for the same is high, as the cost of the injector is high. A better idea can be seen from the figure showing the claim percentage. 94% of the total claim amount is due to the injector blockage.

FIGURE - 2



Claim due to water presence in fuel is an external factor as the customer is required to use the Sedimentor provided by the company, for removing the water present in the fuel. Even though problem including specification error & damages of part is there, the contribution of the same towards total claim is very less and also, it won't affect functionally to the vehicle.

MEASURE

The measurement for the customer problems have been done through Quality Function Deployment (QFD).

QFD is a comprehensive quality system that systematically links the needs of the customer with various business functions and organizational processes, such as marketing, design, quality, production, manufacturing, sales, etc., aligning the entire company toward achieving a common goal.

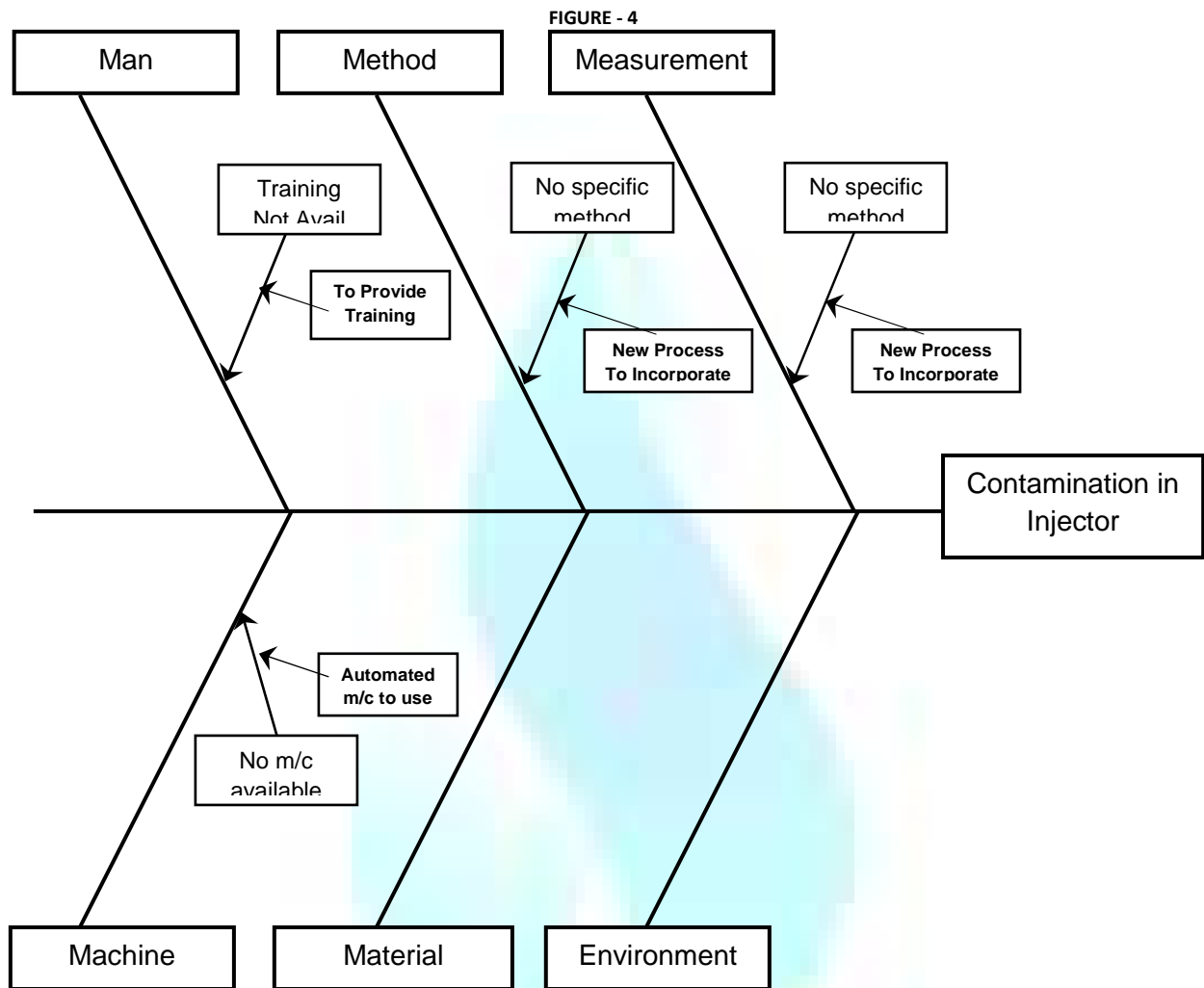
Here in this case study, based on the customer voice, a Quality Function Deployment (QFD) is being made to analyze and to solve the customer problem.

FIGURE - 3

RELATIONSHIPS									
◎	Strong Relationship (10)								
○	Some Relationship (5)								
△	Weak relationship (2)								
	No mark, no relationship (0)								
Relative importance									
CUSTOMER NEEDS									
S NO	Customer Need	Relative Importance	Contamination in Injector	Fuel Contamination	Water presence in Fuel	Cold start	Part Damages	Part spec error	No rust formation
1	Driveability Issue	10	◎	○	○	○		△	△
2	Safety Features Functioning	10	○						
3	Easiness on Part Availability	3	△	△	△		○	◎	△
4	Good Exterior Look	3					◎		
5	Durability (Long Life)	10	○						○
Target Value			< 100						
Technical Importance	Absolute		206	56	56	50	45	50	76
	Relative		1	3	3	4	5	4	2
Remark			Need to Improve	External Factor		Minor Issues			No problem reported

ANALYZE

The major problems have been analyzed through Cause & Effect Diagram (Fish Bone Diagram). The Cause & Effect (CE) diagram, also sometimes called the 'fishbone' diagram, is a tool for discovering all the possible causes for a particular effect. The major purpose of the CE Diagram is to act as a first step in problem solving by generating a comprehensive list of possible causes.



IMPROVE

From above CE Diagram, following improvements need to be done

MACHINE CONCEPT

Incorporating a new automated manufacturing process, which can be used to remove the contaminants in the range of 150µm (0.15 mm) from the parts & also removes the blockage of the injector.

Since this is a special purpose for the company, an intensive study have been conducted & it was decided to give the quotation for developing the same to an organization which had an expertise in this. And thus its planned to give a quote to M/s Curtis - UK to build an automated manufacturing process, which will satisfy the needs. And its planned to be a joined project. Based on so many trials, it came with a model Curtis HPF 300 Flushing Machine. Details of the same being mentioned below.

Curtis HPF 300 Flushing Machine

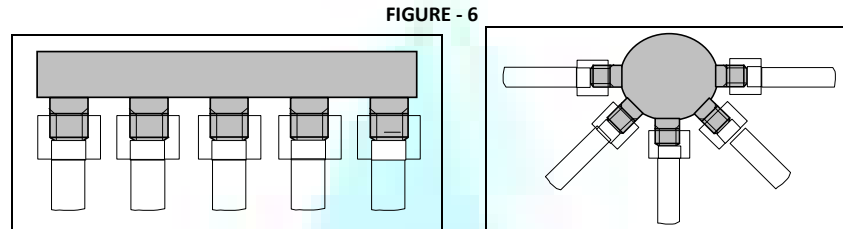


HIGHLIGHTS

- The processes in the machine (position of lance & opening and closing of valves which allow the flow of test oil through each ports) can be controlled using the PLC.
- High stability in pressure generation through servo control (better than ± 0.5 bar)
- High Lance Positional accuracy using PLC (linear ± 0.5 mm; rotational $\pm 1^\circ$)
- Sequence of up to 64 steps can be used through the PLC.
- Suitable to use in a clean room environment.
- High pressure up to 300 bar can be generated for flushing operation
- Intense cleaning using a lance arrangement for not having any contamination above $150 \mu\text{m}$ (0.15 mm)

DESCRIPTION

Designed primarily for diesel injection system rails, the system is capable of cleaning both spherical and linear rails (figure for both mentioned below) and has been adapted for other components.



Oil at variable pressures is flushed through the components and a lance arrangement directs high pressure oil at specific locations where intense cleaning is required. Rails with greatly varying internal orifices may be tested with no modification to system. Suitable for use in a clean room environment, with the power pack unit housing the main fluid reservoir with filtration external to the room. The machine has two independent stations each capable of running a separate product simultaneously. The flexible cycle start sequence will allow twin load/unload, individual load/unload or single load/unload. The NC control of the lance allows static and dynamic linear and rotational positions to be set and dynamic interpolation between linear and angular positions to be achieved. The frame is of stainless steel construction with tooling blocks etc being electro-plated as appropriate. The flushing machine has a footprint of approximately $1.3\text{m} \times 1.3\text{m}$ excluding the power pack.

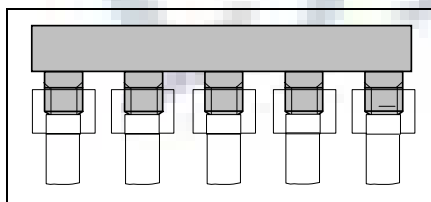
METHOD CONCEPT: (for Automated Manufacturing Process through PLC)

Best method to be used in the automated manufacturing process, so that a consistent quality achievement is possible from the same.

Before finalizing on the final method to be used in the Curtis machine, a number of trials have been made to make sure, which one is the best. The best is revealed in 2 ways.

- After Curtis flushing operation, no contaminants above $150\mu\text{m}$ (0.15 mm) should be present in the product
- The operation need to give a consistent quality through out.

The inside cleanliness of the product is very critical, as it is the area through which the diesel fuel flows in original customer end condition & there is where the original product cleanliness required. For that, 'lance' is being used in the Curtis, which will go inside the product & it can move up & down and also rotate inside. Also, it has a provision to spray the test oil in high pressure, through the tip of the lance

**FIGURE - 8**

LANCE

Keeping this in mind & after a number of trials, the sequence to be followed in the Curtis machine is being finalized as below

- The operator need to clamp the product in the Curtis machine & press start button in the machine to start operation.
- Now 7 valves (5 ports-1 inlet and 4 outlet & 2 corners-used to assemble the sensors) will close the common rail. The valves can be opened & closed as per the PLC program.
- As a 1st operation of machine, the lance will enter the rail through the corner valve & it will go a total movement inside the rail till the end & come back to the initial port position. During the movement of the lance, it will have a rotary motion & the pressurized test oil (of about 2 bar) will have a flushing

operation. This process will take away contaminants from total internal area. During the movement of lance, all the 5 valves (1 inlet & 4 outlet valves) will be open & corner 2 valves will be closed. This allow the contaminants of the flush out of the common rail.

- d) After this the lance will flush at each 5 valves (1 inlet & 4 outlet valves), one by one, starting from the farthest valve. This will again flush out the particles which got attached at the corners of the 5 valves (1 inlet & 4 outlet valves). During this process, only the port on which lance is flushing will allow out flow & all the remaining 4 valves out of 5 valves will allow inflow of test oil. This again take out maximum flush out of contaminants.
- e) As a last operation, the lance again will have a total movement inside the rail, to flush out contaminants completely. This is similar to operation (c).

MEASUREMENT CONCEPT

Even if the machine is being availed to achieve the target of removing the contaminants, it has to be cross checked through measurements. This also helps to improve the process & won't allow to deteriorate the quality of the product.

It is as important as a Curtis flushing operation, as this only give feedback for improvement & correction. So for this, a specialized testing equipment is being used to check the cleanliness of the product. In this regard, after so many trials the company decided to go for Pall cleanliness checking cabinet. Pall PCC 42 Component Cleanliness Cabinet is used for the determination of component cleanliness.

MAN CONCEPT

The sequence which needs to be followed by the person using the automated machine & also by the person who is assuring it, have to be developed. The persons who are operating Curtis machine needs to be well trained before doing their work. He may be required to know all the activities & precautions which he need to follow.

CONTROL

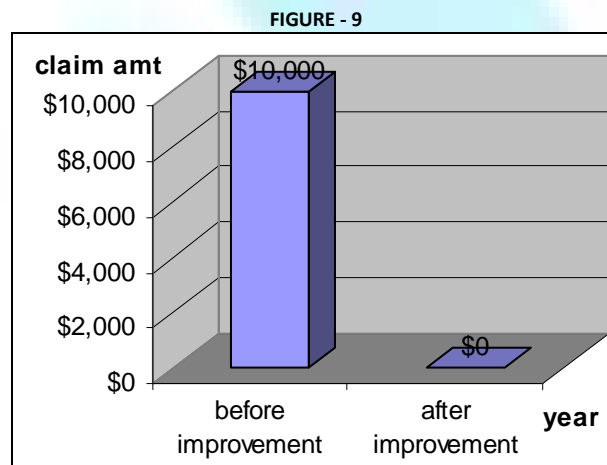
In this, we need to see how to sustain the quality of the product for ever & to control the possibility of any contamination in the products. For that various parameters have been identified both in the Curtis machine & Pall cabinet. Also, need of a clean room is a must for ensuring the same.

Curtis Flushing Machine Control Parameters:

- The filter membrane present in the Curtis machine need to be changed once in every 4 months or within doing 10,000 flushing operations, whichever earlier.
- The test oil used in the machine needs to be changed once in every 6 months or within doing 20,000 flushing operation, whichever earlier.
- The operator needs to use clean gloves always, which helps to prevent cross contamination. Also, they should not wear the same gloves after removing the same.
- The parts needs to be correctly placed in the fixture. It should not damage the parts, while doing so.

CONCLUSION

An automatic manufacturing process came into being for getting maximum output with consistent quality & reliability. But a well structured sequence is required for a successful identification of choosing the automatic manufacturing process. For that reason, DMAIC technique - a 6 sigma tool, plays a crucial role. In the paper, it mentioned on how a transnational business helps in achieving the customer needs. Because of this, the claim amount from the customer due to injector blockage has been reduced to zero in the subsequent year. Refer the graph below.



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COMMUNITIES OF PRACTICE: THEIR ROLE IN THE CREATION AND TRANSFER OF KNOWLEDGE IN ORGANISATIONS

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ABSTRACT

Organisations in the contemporary world are facing the challenge of retaining the willing and competent workforce. When such human capital gets separated from an organisation, they also carry the knowledge treasure about the organisation along with them. Knowledge management in an organisation tries to tackle such issues. This paper focuses on the concept of communities of practice, which acts as a tool to retain the competent workforce.

KEYWORDS

communities of practice, knowledge sharing, tacit knowledge, hidden potential, shared artefacts, golden eggs, repositories, competence, participation, learning mechanisms, conflicts

INTRODUCTION

Due to globalisation of business, many organisations are resorting to the practice of outsourcing various processes and downsizing in order to beat the competition (Hildreth et al., 2000:28). This practice has created a major hurdle to the organisations' progress in the long run. As a result of downsizing, the knowledge is being carried away by the separating workforce. "This knowledge is increasingly seen as central to the success of organisations and an asset that needs to be managed" (Boersma et al., cited in Hildreth 2000:28). It can be either explicit or tacit knowledge. Explicit knowledge is easy to articulate and capture while implicit knowledge needs to be captured very intelligently. It can be done by people who share similar beliefs, values, assumptions and attitudes. "One must cultivate a sense of community that recognises the benefit and leveraging capabilities of knowledge sharing" (Adams 2000:40). In this direction, Communities of practice have been shown to be groups where the softer aspects of knowledge can be created, nurtured and sustained. (Kimble et al., cited in Kimble 2005:103). Thus the focus is on understanding the nature of communities of practice and their role in creation and transfer of knowledge in the organisations.

DEFINITION OF COMMUNITY OF PRACTICE

Lave and Wenger first introduced this concept of a Community of Practice (CoP) in 1991. Lave and Wenger (1991) originally described a Community of Practice as "... a set of relations among persons, activity and world, over time and in relation with other tangential and overlapping CoPs". (Malhotra, 2001:218) The communities of practice are everywhere around us and we are generally involved in a number of them, at work, school, home, civic and leisure interests. In some groups we become core members and in some, we are more at superficial level only.

The issue of communities of practice has been widely discussed in literature. As it was expressed by Wenger (2000) "Communities of practice are the basic building blocks of a social learning system because they are the social 'containers' of the competences that make up such a system".

Furthermore Brown and Gray offered: "CoPs fulfil a number of functions with respect to the creation, accumulation, and diffusion of knowledge in an organization" (Wenger et al., cited in Mittendorff 2006:300). They are very essential to the organisations striving for success with the help of creativity and innovation. "Furthermore they serve as knowledge banks, contribute to strategic development, and stimulate innovation and new business development" (Juriado 2007:50). Thus one of the main reasons for considering the CoPs as important is the tacit-knowledge that is embedded among their members.

So group of individual with some common purpose share some common background, language or experience keeps on regenerating as newcomers join, they learn from others in the group. By sharing new knowledge develops which becomes core knowledge of that community. "Communities of Practice provide an excellent forum for knowledge sharing and a vital question is whether the new communication media". (Hildreth, et al., 1998:275)

NATURE OF COMMUNITIES OF PRACTICE

Communities of practice in many organizations are intentionally created for stimulating and bringing change in the ways of work. As it is rightly observed, "One of the ways to help people share and internalize tacit knowledge is to allow them to talk about their experiences and to exchange their knowledge while working on specific problems" (Ardichvili 2003:65). This aspect can be substantiated by Orr's ethnographic study conducted in 1990. Orr's (cited in Malhotra, 2001) ethnographic study in 1990, in which she has studied a group of photocopier technicians who were speaking to each other while repairing photocopier machines. When they encountered a difficulty in diagnosing or repairing, they talked and shared among each other "war stories" about similar problems they encountered there.

This exchange between them helped them to arrive at a solution to the problem on hand by their exchange of soft knowledge. This solution then became the accepted way for resolving that kind of problem and this created a new knowledge for team. This happens in every CoPs wherein a new member moved from the peripheral level of participation to a fuller level of participation over a period of them. By constant interaction they move from peripheral to inner circle in CoPs and soft knowledge gets transferred into explicit knowledge. Its existence is sustained by integrity of word and continuous practice and participation and the connections that the members maintain within the group. This participation and connections is fluid and not static. It is forever evolving into new connections.

The above brings out the actual practice of learning, knowledge transfer and knowledge acquisition, which then becomes a stored knowledge in a CoPs.

ORGANIZATION AND CoPs

As CoPs exist everywhere- wherever there are people and naturally it exists in organization. In organization the membership is based on how you participate rather than what your official status is and as such the organizational CoPs are not bounded by affiliations of the organization and go beyond the organization structures and hierarchies. Wang et al., (2008) explains the ways the communities of practice may exist in organisations – they may be from different units of the same organisation or even from different organizations altogether (e.g., Association of all physicians in a particular location or all CEOs from different companies

together) and complement the function of formal units.

Today's economy runs on knowledge. Many organisations work from inside this fact and are having advanced technical knowledge, greater competition and increased pace of change in happening. This has caused the organisation to try new models to sustain and provide agility, flexibility and adaptability. The new models includes cross functional team, customer focused business units and CoP. Raja et al.,(cited in Matos 2007:26) has observed that "organisation have been viewing their employee's knowledge as the most valuable trump". Many organisations have realised that their employees have hidden potential which are not brought in the best of opportunities as these potentiality is in multidimensional. So by having CoPs inside the organisations, these potential is being harvested by horizontal promotions so that these multidisciplinary heroes can work across different boundaries within the organisation. It unleashes the creative powers of individuals individually and collectively as a single enterprise creating new ways to work and learn together. It establishes free association of people passionate about what they do and want to do together. It finally becomes a formal voice in organization.

COMMUNITY OF PRACTICE AS A TOOL TO CAPTURE AND TRANSFER KNOWLEDGE

CoPs- the Killer technique, contributes to help to share and transfer knowledge in the organization in the following ways.

"CoPs are increasingly seen as central means to foster and enhance learning, knowledge sharing and integration in organizations" (Zboralski, 2009:90). They help to constantly discuss new technology upcoming with their suppliers and help their organisation to be receptive to these technological changes.

"CoPs are 'Part of the System'." (Wenger et al., cited in Scarso 2007:379). Communities of practice act as knowledge centers for creating, disseminating and applying the knowledge (tacit and explicit) in various process of the organisation. Hence they are called as part of the organizational system.

"Members of CoPs share a social and organizational context and establish informal personal bonds that support the exchange of knowledge between business units" (Tsai cited in Borzillo 2009:61). They help each other to solve immediate problems and hence contribute to the success of the organisation.

"CoPs produce shared artefacts such as tools, stories and procedures that reify something of its practice" (Wenger cited in Kimble 2005:104). When they face problem, they refine their knowledge and skills with interactions and develop new solutions through such shared artefacts.

"Peer-to-peer technology can complement a centralized technological architecture to help CoP members share their knowledge and enhance their social interaction" (Wang et al., 2008: 529). They use technology as interface for the creation and transfer of knowledge.

CoPs "provide firms with a vital source of organizational learning and incremental innovation as community members improve their practice through the continuous creation of knowledge" (Wenger cited in Schenkel 2008:106). When highly active influential CoPs keep themselves informed of latest innovations not only inside their organizations but also in the market, thereby they can foster new initiatives.

"It not only gives golden eggs but also the goose that lay them". (Wenger & Synder, 2000:143) The strength of CoPs is self perpetuating. Through participation in CoPs, organization learn together by focusing on the problems that are directly related to their work , making their work easier and effective, in long term some practices become best practices. It finally develops capabilities critical to the continued success of the organization itself.

CoPs reduce rework and "reinvention of the wheel". (Baets, 2005:125) Because practices has been stored in the common repositories, every employee or organisations need not start from the scratch , the best practices, procedures, process that are laid down and working in other places can be replicated inside their organisation thereby saving enormous investment in time and finance.

"CoPs are organizational assets since they form the very essence of learning in an organization since it creates a new opportunities for learning". (Wenger, 1998:253) Cops are organizational assets since they transcend boundaries and create learning structure outside the organizational structure. This helps members to go beyond their hierarchical structural boundaries, interact with each other to state point of views creating new opportunities for learning.

The members develop professional skills. As they participate in the peripherals into active and core, the apprentices learn as much as they do from the master craftsmen who would be older members. (Wenger & Snyder, 2000)

"Engage in personal and professional development" (Onge & Wallace, 2003:97) CoPs will be a means for the members to step up their professional skills as they would be interacting with other experienced persons, triggering their need to upgrade themselves.

"A strong community encourages the members to share knowledge, exchange ideas and ask controversial questions" (Wenger et al., cited in Meeuwesen 2007:335). CoPs by providing a forum of discussions and a referral for references, it creates an opportunities for all members to directly and actively participate in knowledge creation and dissemination. It is fun to wonder than to follow straight and narrow path.

ROLE OF MANAGERS IN FACILITATING THE CREATION AND DEVELOPMENT OF A COMMUNITY OF PRACTICE

The present day workforce is more knowledgeable compared to the pre- information technology era. Hence they are referred to as "knowledge workers". Managing the knowledge workers poses a challenge to the contemporary managers. In this context, managers of the present day organisations use the concept of Communities of practice to combat this challenge. Recognising how the learning, knowledge capture and transfer is happening between the CoPs members, the ability to problem solving; the management of many organisations have now woken up and have started looking at CoPs as a structure that can be put in place to the advantage of the business enterprise as a whole.

"Communities of practice are not a new kind of organizational unit". (Peltonen & Lamsa, 2004:254) Informally CoPs exist in any organisation. Each members are members due to their participation in it rather their official status. So these CoPs are not bound by any organisational structures or boundaries. They are different cut from the normal organisational structure where each member is interested in learning and upgrading themselves individually and collectively as a group. Here the main focus is on learning, learning by groups rather than task and work schedules.

"Organisations are social design directed at practice" (Wenger, 1998:241) If we look at this objectively, yes, it is through practise that people in an organisation come together to do the things they do together, know what they know and ultimately learn what they want to learn. So CoPs are key to an organisation's success and competence.

"What managers having been missing so far is an understanding of the kind of social structure that can take responsibility for fostering learning, developing competencies, and managing knowledge". (Wenger, et al. 2002:97) This has brought out the very essence of the role that managers can play in doing just this and helping CoPs grow. Basically CoPs organize between themselves with what matters to each members, so here is where the managers can play a vital role in making members practice what matters to themselves becoming what matters to the organization. New organization members can inoculated into this fold of CoPs formally by the Managers and thus new comers would be tapping knowledge from the group, learn and develop competence themselves on their own will. So Managers needs to play a bigger game in these groups.

In all industries, companies are discovering that CoPs offer new possibilities- possibilities for weaving the organisation around knowledge, connecting people, solving problems and creating new opportunities for themselves and their members. So help is needed for CoPs to focus upon those areas which are of interest to the organisation, business enterprise. This focus can be truly guided and practised by Management and Managers

MANAGEMENT, MANAGERS AND CoPs

(Wenger, et al. 2002) gave an analogy of a Park to bring out this meaning very precisely. He says a park would be exciting and appealing if its location provides a short cut between two destinations. It invites people to sit for lunch or chatting on their benches if the benches are slightly off the main path and out of ear-short surrounded by beautiful flowers bed. Similar to this the organisational structure and events should also invite the people for interaction.

A Well designed CoPs invites people for participation in group discussion, one-to-one conversation, reading new ideas, watching experts duel over important issues. A Manager should participate in the design of the CoPs. As community members are not your bosses but your peers, a Manager should see that the structure is not formal in nature. Otherwise the whole design would be similar to any other formal organisational team, network or function. He can rely heavily on informal structure for issues related to knowledge, innovations etc. Domain knowledge should be the focus of creating this.

By doing this, he is ensuring that unlike project teams that come and go, business functions that develop and change, team assemble and disassemble, the CoPs will sustain a under laying layer of stability by having a common domain knowledge connectivity since the members will connect with them for rest of their career.

A MANAGER SHOULD INVITE DIFFERENT LEVELS OF PARTICIPATION

He should not set a whole lot of rules and formal regulations, policies of how the members will participate inside the CoPs but should ensure that confidentiality and appropriateness of topics under discussion should be ensured. He should only facilitate only since facilitation guides the process but the momentum and the CoPs characteristics are created the members of the CoPs.

"The Design for Aliveness" (Wenger, et al. 2002:50) A Good Community should invite different levels of participation from all its members from all levels of the community and across locations. Imagine a busy street- people walking, strolling and rush across each others, some going inside shops, and some viewing the windows, some rushing to catch a transport to some place, Chatting at coffee shops. The street would be busy. Same time, please note there would be some people at the windows of the shops looking out into the street, standing in the aisles watching the whole busy street. The community of the Practice also works the same way. Such "Alive" communities so should need a co-ordinator who provides this aliveness inside the structure. And who else, but the Manager can take leadership role here to organize events and connects the community.

He should rely on creating fun in participating in the beginning. He should design the meetings, events in such a way that every member whether the member (like the members of the busy street rushing somewhere) is at the core of the CoPs or at the peripheral level (like the ones in the shops looking out of the windows) should be willing to participates freely.

A MANAGER SHOULD ALSO FOCUS ON THE VALUE

Value is the main key or result in a community life. Members of CoPs are members because they get value in being members. This knowledge should drive the Managers to keep focus on value creation and fostering in the CoPs so designed by him. Many of the values created would be small, the results of which are not apparent immediately. So Managers encourage community members to be explicit about the value of the community throughout its lifetime.

Short terms values that he can help to create are with new comers being inducted into the fold. Immediate results can be achieved. Members will keep themselves updated on latest development and benchmark their expertise against their colleagues in other organisations, thereby creating value for their organisation.

The Manager should determine the best way that all the members initially by interviewing all the members about their institutional and personal challenges of the subject matter or event and thereby from the ideas that emerge to create to learn systematically and efficiently about each other's perspectives. In this way every members would take back value with them in each interactions.

A MANAGER SHOULD ENSURE ARTEFACTS' ARE MAINTAINED

The members of the Cops have shared repositories in the form of common vocabulary, routines, understanding and artefacts, those members develop over time. (Hildreth & Kimble, 2004) Hence "the task of the CoP manager is to create conditions where a sense of joint enterprise, mutual engagement and a shared repertoire of actions are possible" (Wenger cited in Garavan 2007:37). This can be achieved by conducting regular meetings, conferences, informal get-togethers and so on. All the discussions, stories, tools of communication that takes place by these meetings are actually knowledge repositories which the managers can rely upon. These artefacts are to be maintained in the repositories so that any members can pull these as and when they require for their use. He should also ensure that such artefacts are maintained that are being current and also learn to unlearn the old and dead artefacts. (Kimble, et al., 2008) He should be involved in managing, classifying and organising the community materials. With time he would be able to arrange the materials so that the community members can easily access the same. This meant that he should attend all the meetings or events that are taking place to know what are the subjects that are current and what subjects should be archived for future use. Both the inventory of knowledge objects and organising of them evolved naturally from the activities and needs of the community. A Manager should ensure about boundaries and create a safe place for members to take risk "CoPs would become a safe place for the head to bring their issues" (Kimble, et al., 2008:262)

The above statement brings out the importance of "safeness" in knowledge sharing between members of Cops. "Furthermore, because communities of practice provide a safe forum where people are comfortable in sharing challenges and perspectives around a common topic they serve as breeding grounds for innovation" (Slater et al., cited in Dewhurst 2004:324). Hence it is the duty of the manager to create a safe environment for the exchange of knowledge among members of CoP. By doing so, the CoP members would be able to share highly confidential, highly sensitive professional views, dilemma in order to reflect and learn more about their own situations clinically in consultations with other members of the CoPs. The managers should emphasize collective understanding among the members for handling the inquiries that might lead towards accessing the confidential information.

Ultimately, the CoPs members would develop a perception that the CoPs is a safe place to go and seek feedback on sensitive, confidential issues which otherwise they would feel embarrassed to discuss about. As the members come to know each other, the barriers they had seen at the start of the CoPs would recline backwards. So the managers would ultimately create and develop "relationships in comfort zone. "Nearer to a friendship footing" (Kimble, et al., 2008:262) A manager should balance the community and knowledge needs of the organisation and community

"A Cop must try to offer a balance of familiar and exciting events" (Wenger, et al. 2002:194) The managers should be able to balance the support for the community and give support for the development of knowledge as well as be the catalyst to bring both together excitingly for members to participate wholeheartedly.

Secondly the balance should be to build on and at the same time change the organisational culture also to sustain itself. Over a period of time, the organisation CoPs develop their own culture and they transform the culture of the organisation by their strong collective influence.

As the existence of the CoPs is an organisation agenda, then he should provide opportunities to learn from those implementing the same. The balance of keeping the organizational agenda in the forefront and meeting the communities need must be taken into account in all aspects. He can have teams working for him that allows for skill required, place people in strategic locations, for that extra synergy required. Having a team that works well together, that understands the purpose and the dynamics of CoPs is very high on the list of success. (Kimble, et al., 2008)

FACILITATING VARIOUS LEARNING MECHANISM

"Members use each other as sounding boards ,build on each other's idea provide a filtering mechanism to deal with knowledge overboard" (Wenger, et al. 2002:34). As a co-ordinator he should facilitate various learning mechanisms to the members strategically spark interest in participation through face-to-face meetings, teleconferences, visits, projects, list serve exchanges, and website moderato. By constant interaction with each other, learning happens between members and these learning needs to be captured as this will contribute to a unique dimension to the overall network participation.

Meeting network partners significantly increased trust to share electronically and over the phone, the ideas brewing and generating between the members. Although these Manager can take advantage of the Internet and the tools it currently provides, they are uniform in their understanding of the importance of sociability and community beyond the constraints of any technological platforms. Managers need to cultivate CoPs actively and systematically for their benefits as well as the benefit of the organisations and also for the benefit of the CoPs members.

CONCLUSION

Management of Knowledge in the organisations is increasingly gaining momentum due to shrinkage of the entire world into one "global village". The knowledge which is developed and built over a period of time cannot be replaced in the short term if not in the long term. Hence, Communities of practice can be used as one of the main tools to sustain the knowledge that is captured in the processes of organisations.

Many professional service organisations (McKinsey and Company, Ernst & Young) whose business expertise relay on their employees expertise and other

professional organisations like HP, IBM, US Army are forefront in capturing knowledge through various practices and show a successful picture of the Community of Practice's being practised.

Furthermore, Managers of the organisation plays a crucial role in the creation and development of CoPs. Starting from the formation of CoPs, developing them over time and nurturing to the extent of reaching the corporate goal, it is the manager who should facilitate them in their activities. Hence it is rightly claimed by Stewart (1996) that "communities of practice are the shop floor of human capital, the place where stuff gets made" (Stewart cited in Meeuwesen 2007:335). Though CoPs are advantageous they are not without limitations. Numerous examples of successful CoPs are available and at the same time we can also come across many failures. "As affirmed by Coakes and Clarke (2006b), communities are often easier to destroy than construct. There is no "one-best-way" approach to CoP's formation and management, and a poorly reflected solution may not produce valuable outcomes" (Pemberton et al., cited in Scarso 2008:376). Thus it is found that CoPs at times block the roads of success in an organisation.

It is important to note that tacit knowledge is difficult to capture and much of the literature on CoPs describes the assimilation of tacit knowledge. "Some investigations conclude that the notion of communities of practice as a self-regulating process is clearly in opposition to a normative goal to steer them to increase performance" (Fox et al., cited in Borzillo 2009:60). As such, sometimes it becomes a futile effort on the part of the management in allowing the growth of CoPs.

"On occasions the various CoPs hit roadblocks and obstacles" (Garavan 2007:45) In other words the indifferences among the members give rise to conflicts which will disrupt the normal functioning of the organisation. At this juncture, the managers have to intervene to provide sufficient morale and inspiration.

Also CoPs are disadvantageous in temporary organisational networks. "A single community of practice can include individuals crossing numerous organizational boundaries, varying from immediate workgroups to a set of contacts on the other side of the world" (Teigland cited in Schenkel 2008:109). As a result of which many organisations may face the problem of cultural differences. Furthermore "Managers of small organisations joined together in an inter-organisational partnership may try to hinder learning, as it is associated with the risk of disclosing too much information to other partners that may become competitors instead" (Barney et al., cited in Juraido 2007:53). In doing so, the very basis of the formation of CoPs is not met and it becomes a meaningless effort altogether. Finally to conclude, Just as a plant is cultivated by nurturing it carefully, waiting and watching it grow, carefully pulling out the weeds when they develop, seeing that the roots are not destroyed but protected, the managers should nurture the development of CoPs, letting it grow naturally and healthily for the benefits to be reaped. (Harvard Business Review, 2000)

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MANAGEMENT OF OVERALL PRODUCTIVITY IN SPOT WELDING CARRIED OUT IN WELD DIVISION OF A LIMITED COMPANY

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ABSTRACT

In the highly competitive nature of the automotive industry there is always demand for improvements and increased precision engineering in the area of spot welding. The present experimental study addresses the issue of management of overall productivity in spot welding process used in the weld division of automobile limited company. By studying the weld division area for a stipulated period, and having obtained an understanding of the working methods, it was observed that there was more spatter formation during the spot welding process in the weld division which required immediate addressing as it adversely affected the productivity of the company by creating unsafe working environment for the operators and inturn affecting the morale & overall performance of them, causing weld defects due to weld separation and spot burr which in turn increased the cost of rework and scraps. Thus, to overcome the above problems, the spatter reduction activity was carried out to improve overall productivity. The management came forward in implementing the countermeasures which resulted in improved working conditions, reduction in defects and rework time by 33%, reduction in Defects per Vehicle (DVP) by 29%, reduction in rework cost by 66% and reduction in safety gears consumption by 11% hence increasing the overall productivity and the managerial aspects of the company.

KEYWORDS

Spatter, Spot welding, jig, Cause and Effect Diagram, Spot burr, Hanare Defects.

INTRODUCTION

Spot welding is a resistance welding process in which overlapping sheets are joined by local fusion at one or more spots by the heat generated by the resistance to the flow of electric current through work pieces that are held together under force by two electrodes, one above the other below overlapping sheets. The normal welding parameters considered for spot welding are current-9000-15000 A., Time-10-25 cycles and pressure-200-400 KPa. Spot welding process finds extensive application in automobile and aircraft industries because of its advantages like; low cost, dependability, high speed welding, high uniformity of products and no edge preparation required over other welding processes. Spot welding gun is one of the most important equipment in spot welding process. Gun handle, trigger, Pneumatic cylinder, gun yoke, tip shank & tips involved are the major parts of a welding gun. There are different types of guns with different shapes based on the requirements such as C and X guns' guns are used to weld horizontal panels whereas X guns are used for vertical panels. The power transmission in spot welding is done using a step down transformer .power is transmitted by using aid cables which are made up of many strands of fine copper wire twisted into ropes which in turn are twisted together to form the body of the cable. A neoprene dipped cotton braid protects the cable. The cables are equipped with internal cooling system which flows between the insulated cable and cotton wire in order to cool the tip and the gun from the large amount of heat generated during the welding process. The electrodes used in spot welding possess good mechanical strength and hardness at high temperatures. The tip of the electrodes are usually made from copper alloys and are of 3 types i.e.; pointed, domed and flat tip. Electrode tip maintenance plays a vital role in determining the quality of the weld since the tip is the main component of the spot welding that comes in contact with joining metals and determines the area over which current and pressure are distributed. The defects caused in spot welding due to various parameters such as improper gun, varying welding parameters, usage of improper gun tips and impurities on welding surface are as follows; Spatter, spot hanare, pin hole, spot hole, spot burr, spot miss and pitch NG. Spatter is the metal particles blown away from the welding spot, which create an unsafe working environment to the workers on the shop floor and damages the safety gears. Hanare is a Japanese word meaning separation. After welding, a part or panel getting separated from the welded point is called as spot hanare or hanare defects. These defects in turn affects the overall productivity by decreasing the strength of the spot weld, increasing rework or MUDA, causes damage to the equipments and safety gears, causes injuries to the operators and eventually the company's quality reputation.

METHODOLOGY

Methodology is a description of process, simple set of methods or procedures, concepts or ideas that relate to a particular discipline or field of inquiry. In the proposed study the methodology planned is as listed below;

- Preliminary Observation
- Construction of cause and effect diagram
- Model Area Selection
- Implementation of Countermeasure
- Jig wise spatter analysis
- Evaluation

PRELIMINARY OBSERVATION

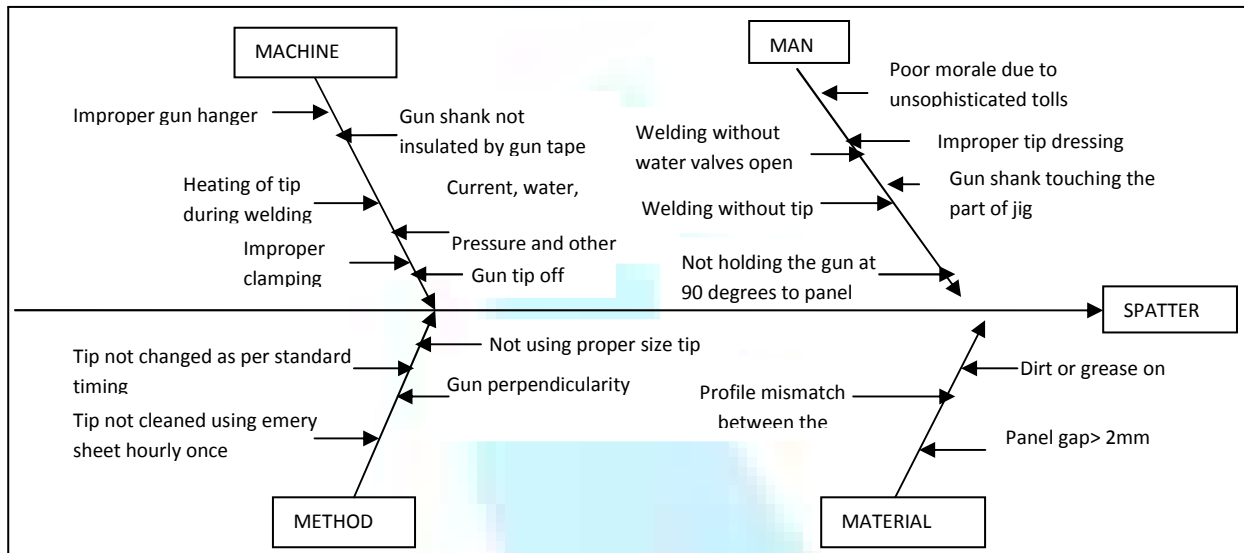
During the initial observation period in the weld section line it is noted that there is more spatter formation during welding which caused inconvenience for the operators, which inturn lead to more number of defective pieces. A spatter analysis was carried out in order to analyse the intensity of spatter formation in all

jigs of the weld line. Each gun in the line was observed for the length and intensity of spatter, and all the guns were rated on average length and intensity of the spatter formed at each gun. The guns producing high intensity spatter of length more than 3 meters were rated A, the guns with low intensity spatter of less than 1 meter was rated as D and others were rated in between as B & C. The jig wise spatter analysis was carried out for four processes namely; main body (9 jigs), under body (9 jigs), side member (26 jigs) and cowl sub assembly (8 jigs).

CONSTRUCTION OF CAUSE AND EFFECT DIAGRAM

The possible factors causing spatter were noted down during the preliminary observation period with reference to 4M's- Man, Machine, Method & material after which a fish bone diagram was constructed to analyse the causes and their effects on spatter formation as shown below in Fig.1.

FIG.1: CAUSE AND EFFECT DIAGRAM



From the above cause and effect diagram, it is analysed that the following factors were the causes for spatter formation;

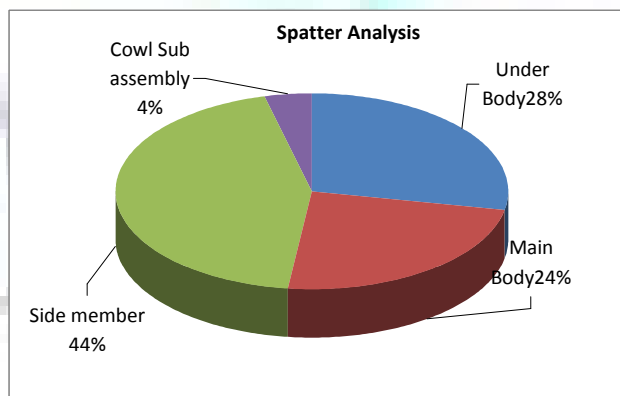
- Improper jig Layout
- Improper gun handing(non perpendicularity of the gun to panel surface)
- Excessive gap between the panels
- Presence of impurities on panel surfaces
- Tip offset beyond the surface limit
- Improper alignment of gun hanger
- Improper gun guide
- Kick-less cable position.
- Poor morale of the operators due to unsophisticated tools

MODEL AREA SELECTION

The next step in the study was to select a model area for the implementation of the countermeasures. This was done by collecting spatter formation in various groups of the weld shop and identifying the group where maximum spatter is being produced. The management selected a model area for the implementation of the activity using a pie chart as shown in fig 2. Here the data from the jig wise spatter analysis is used to identify the area with high intensity of spatter to implement the activity.

By the analysis of the pie chart, it was noted that the side member area of the weld line had a high intensity of spatter and hence it was selected as the model area for the implementation of the activity.

FIG.2- SPATTER ANALYSIS PIE CHART



IMPLEMENTATION OF COUNTERMEASURES

Once the model area was selected, the causes for spatter formation was analysed and the countermeasures were determined to reduce spatter formation. The countermeasures were implemented in the side member section and are as follows;

1) MODIFICATION OF JIG LAYOUT : THE PREVIOUS JIG LAYOUT

Was not ergonomically designed and hence was hindering free movement of gun making it difficult for the operator to perform welding on both jigs and to maintain perpendicularity. Therefore the layout was modified ergonomically to enable easy workability for the operator, which improved the overall productivity in the shop floor. The previous and improved layout conditions are shown in Fig-3(a&b)

FIG.3A PREVIOUS LAYOUT

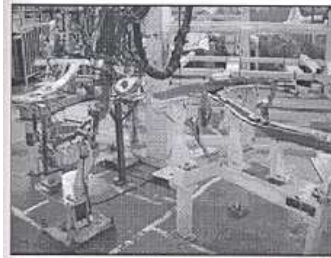
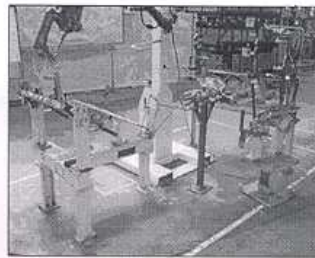


FIG.3B IMPROVED LAYOUT



2) IMPROVED GUN HANDLING: DUE TO IMPROPER ALIGNMENT

Of the aid cables and the gun hanger of the jig, the operator was not able to move the gun freely to maintain gun perpendicularity with the panel resulting in spatter formation. Therefore the positioning of the aid cable and the gun hanger balance were modified to facilitate free gun movement as shown in fig 4(a&b) & 5(a&b)

FIG.4A PREVIOUS AID CABLE

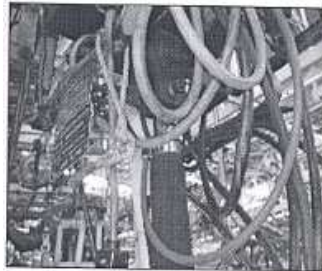


FIG.4B IMPROPER GUN HANGER



FIG.5A IMPROVED AID CABLE

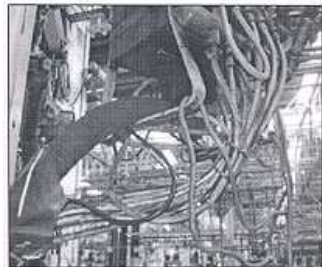


FIG.5B IMPROVED GUN HANGER



3) REDUCING THE GAP BETWEEN PANEL: THE GAP BETWEEN

The panels in the jig was noted to be more than 2mm. It is very important to ensure that the gap between the panels to be welded is minimized as much as possible in order to avoid spatter formation and defective weld. Hence a 2mm shim was added in the jig as temporary clamping to minimise the gap. The previous and improved conditions are as shown in fig 6&7.

FIG.6 MORE GAP BETWEEN PANELS

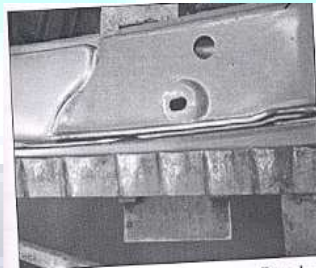


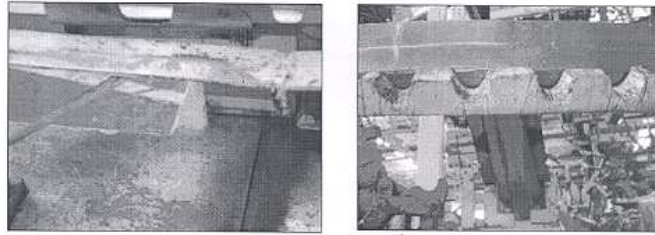
FIG.7 INSERTION OF 2MM SHIM AND IMPROVED CLAMPING



4) INSTALLATION OF NEW GUN GUIDE:

It was observed that there was no gun guide in the previous jig because of which the operator was not able to maintain perpendicularity with the panel surfaces. Hence a new gun guide was installed to enable easy gun handling as shown in fig 8.

FIG.8 JIG WITHOUT GUN GUIDE AND JIG WITH GUN GUIDE



RESULTS AND DISCUSSIONS

A. JIG WISE SPATTER ANALYSIS

Jig wise spatter analysis of all the jigs in the side member line was carried out after the implementation of the countermeasures. By comparison with the previous conditions and the implemented countermeasures, there was a reduction in rank A & B spatter formation guns and also no spatter guns were considerably increased. There was an increase of No spatter guns by 14.2%.The observation summary is as shown below in table.1.

TABLE: JIG WISE SPATTER ANALYSIS

Before Activity					
Spatter Intensity	>3 mtrs	2-3 mtrs	1-2 mtrs	<1 mtrs	No spatter
No.Of Guns	3	8	21	21	3
After Activity					
Spatter Intensity	>3 mtrs	2-3 mtrs	1-2 mtrs	<1 mtrs	No spatter
No.Of Guns	2	5	13	28	8

B. REDUCTION IN HANARE

After the implementation of the countermeasures there was a noticeable reduction in hanare occurrence. Here is the 6 month hanare data of the side member line where in we can see the reduction in hanare defects after implementation of countermeasures which is 33% below average number of hanare cases per month.Hanare data of past 6 months is as shown in table.2.

TABLE I: HANARE DATA OF PAST 6 MONTHS

Month	No.of hanare
September	4
October	7
November	8
December	5
January	6
February	2

C. REDUCTION IN REWORK TIME DUE TO HANARE

The approximate time taken to carry out a 1 hanare check is estimated to be 1 min. If hanare occurs in the weld line then the upcoming ten bodies and front ten bodies are checked, hence a minimum number of cars checked if a hanare occurs will be 20 bodies and therefore the total time lost due to 1 hanare occurs will be 20 mins. After implementation of countermeasures rework time 33.3% less than average rework time is achieved. Time lost due to hanare in last 6 months is shown below in table III.

TABLE II: TIME LOST DUE TO HANARE IN LAST 6 MONTHS

Month	Time lost (mins)
September	80
October	140
November	160
December	100
January	120
February	40

D. REDUCTION IN SPOT BURR

Spatter formation leads to spot burr, which inturn leads to other surface defects. So the reduction in spatter helps to reduce defects per vehicle (DPV).After the implementation of countermeasures DPV less than 29% of average DPV per month is achieved which is shown in the table IV.

TABLE IV: DPV DATA OF PAST 6 MONTHS

Month	DPV
September	0.2
October	0.15
November	0.23
December	0.2
January	0.21
February	0.14

E. REDUCTION IN REWORK COST

There is a considerable cost associated with rework due to hanare, which can be approximately calculated without taking into account the loss due to reduced productivity and depreciation costs.

1) Cost estimation for rework due to hanare

Total welding cost = Labour cost + Welding Consumables + Power cost

Labour cost per job

Labour cost = $\frac{\text{total meters o weld} \times (\text{labour and overhead charges/hr})}{(\text{Welding speed in m/hr}) \times (\text{operating factor})}$

$$\text{Operating factor \%} = \frac{\text{Arc Time} * 100}{\text{Arc Time} + \text{Down Time}}$$

Considering salary of technician as Rs.10,000/month

$$\text{The labour cost per hour} = \frac{10,000}{8 * 25} = \text{Rs.50/hr} = \text{Rs.0.833/min}$$

Power cost per min is estimated to be Rs.0.0312

Therefore the total cost per hanare rework is estimated to be Rs.2.422. After the implementation of countermeasures, the rework cost was reduced to 66.6% below the average rework cost.

F. REDUCTION IN SAFETY GEARS CONSUMPTION

Safety gears are very much essential for the workers during welding process, also it accounts for a major part of the cost. After the implementation of countermeasures, it was evident that there was reduction in safety gears consumption by 115 below the average. The data for safety gear consumption pattern for past 6 months is shown in table V&VI

TABLE V: COST OF SAFETY GEARS

Sl.No	Part Name	Cost(Rs/Unit)
1.	Overcoat	149
2.	Arm cover	27.3
3.	Wrist support	14.7
4.	Cotton gloves	7.2
5.	Ear plug	11
6.	Mask	30.3
7.	Safety goggle	110
8.	Leg guard	100
9.	Safety shoes	750

TABLE VI: SAFETY GEAR CONSUMPTION DATA

Month	Safety Gears Consumption(in Rs)
September	16357
October	17183
November	17672
December	16324
January	18526
February	15308

CONCLUSION

The present paper outlines the study of the factors causing spatter formation in spot welding process and implementation of countermeasures taken by the management. Reduced spatter formation aids in improved workability with modified jig layout, improved working conditions making it safer for the workers on the shop floor, average hanare defects and average rework time is reduced by 33% per month, average DVP per month is reduced by 29%, average rework cost and safety gear consumption is reduced by 66% and 11% per month respectively, There by increasing the over all productivity. The above paper emphasizes the importance given to the operator, which projects the managerial skills of the management of the limited company.

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A STUDY ON THE PERFORMANCE OF INVENTORY MANAGEMENT IN APSRTC

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ABSTRACT

The economic development of any country largely depends on the transport activity. Among the various modes of transport available, the road based transport is widely accepted, because of its peculiar advantages. In India, the public transport undertakings are facing heavy competition from private ownership and operating in an environment of privatization. One among the various reasons for getting losses in transport undertakings is the absence of proper inventory management. The present work is a study on the practices of inventory management of APSRTC. The effectiveness of inventory management policies is measured in terms of inventory holdings per vehicle, inventory holdings per lakh effective kilometers, inventory in terms of number of month's consumption, level of inventory in relation to various assets, and the level of inventory in terms of per day operating income. The data have been analyzed using various statistical tools and compared with the profits and losses of the corporation. The results indicate that the inventory management practices of the corporation were good and have not shown any impact on the losses of the corporation.

KEYWORDS

Inventory, Inventory Management, Privatization, Transport Undertaking.

INTRODUCTION

Infrastructural facilities, viz., power, transport and communication network etc., are essential inputs for any country's economic development. Out of these inputs, transport facility is one of the key factors required for economic development because there is hardly any activity which is not influenced by transport service. It is a fact that socio economic activities and transportation system are closely related. Road transport system assumes a significant position in the overall development of any country. Road and road transport are the important constituents of any transport system. A well developed, cheap and efficient network of transport system leads to speedy movement of human beings, materials and resources more effectively from their places of abundance to the places of inherent demand. It creates a feeling of ourselves among the people with a spirit of progress thereby able to overcome their apathy and isolation. Since people need to travel, goods have to be moved from place to place, so transportation acts as catalyst and forms the back bone of the economic growth.

Transport has long been recognized as an engine of growth for the long term development of any country. In a predominantly economy with a vast and growing populace spread over an extensive mass of land, notwithstanding the vagaries of development in other sectors, the transport sector in India, ironically has received scant attention over the past few decades of the planning era. The road based transport is the popular mode of transport because of its peculiar advantages such as flexibility, capital requirements, capacity, infrastructure, accessibility and adoptability, in addition to route, direction, time and speed etc. Public transport plays a vital role in providing services to the rural areas. It helps in connecting the rural population living in remote areas with the main stream of socio economic activities. It is considered to be a vital infrastructure and a predominant mode of transport in moving short and medium distance passenger traffic in the country.

At the time of independence the road transport services were entirely in the hands of private operators, and the transport sector was completely fragmented and totally unorganized. There were several private operators competing among themselves and the quality of services rendered to the traveling public was also substandard. They try to snatch each other's piece of traffic share. In this cut throat competition for survival, each one gets so little with which one cannot live long.

The main objective of the private operators was to make profits without any social concern. As a result, people at large were deprived of adequate transport services and there was large scale exploitation of labour in this sector.

Realizing the evils of uncoordinated and uncontrolled passenger road transport, Government of India enacted the "Road Transport Corporations Act-1950" enabling the states to establish corporations and to progressively nationalize the bus transportation in the country. The objectives as laid down by the RTC act are "to provide an efficient, adequate, economic and properly coordinated transport services and to run on business principle". Consequently with the enhancement of this act, several states have established road transport corporations for running their services. After the introduction of 1950's Road Transport Corporations Act, the process of bus transport nationalization started in the country and a well organized bus transport system was developed to serve the traveling public.

After more than 5 decades of nationalization of passenger road transport and consequent formation State Transport Undertakings (STUs), the passenger transport industry is suffering from losses and not in a position to offer various services to travelling public. As a result dissatisfied public transport passengers are increasingly turning towards private mode of transport. One among the various reasons for mounting losses to the transport undertakings may be due to the absence of proper inventory management policies. Because, inventory management plays an important role in deciding the profitability of any service organization, an attempt has been made in the present study, to know whether the losses of the corporation were due to inefficiency of inventory management are not.

SIGNIFICANCE OF THE STUDY

The importance of inventory management lies in the fact that any significant contribution made by the materials manager in reducing materials cost go a long way in improving the profitability of the organization. Inventory management aims in providing the desired degree of service to the organization at minimum cost. This function include, effective maintenance of stores, timely availability of material, avoiding un necessary buildup of inventories, development of polices, plans and standards to achieve inventory control objectives, maintenance of overall control by checking results and adopting corrective actions etc. To achieve the overall benefits of the organization, a sound inventory management activity must be given due importance.

One of the important objectives of the public transport undertakings is to provide efficient transport facility to the traveling public. To achieve this objective, continuous updating and monitoring of inventory management policies are essential to keep pace with the change in time, to avoid any dissatisfaction of the passengers as well as lowering the losses of the corporation. To study the inventory management practices of the corporation, various measures which are directly related to working of the corporation have been considered. These measures include inventory holdings per vehicle, inventory holdings per lakh effective kilometers, inventory in terms of number of month's consumption, level of inventory in relation to various assets, and the level of inventory in terms of per day operating income etc. The analysis used in the present study will help the authorities of transport undertakings, to concentrate and to develop more appropriate strategies on the areas where inventory management is poor, and on the basis of which a well designed set of action can be taken for better performance of the transport undertakings.

OBJECTIVES OF THE STUDY

As the corporation was getting losses continuously in the past few years, a study has been undertaken to know whether the losses of the corporation were due to inefficient practices of the Inventory management or not. As against this back ground, the following objectives have been formulated

1. To know the Inventory management practices in APSRTC, in terms of inventory holdings per vehicle, inventory holdings per lakh effective kilometers and Inventory in terms of number of month's consumption
2. To know the Inventory management practices in APSRTC, in terms of level of inventory in relation to various assets, and the level of inventory in terms of per day operating income

METHODOLOGY

SAMPLING UNIT

The transport undertakings, varying from state to state taking one of the four forms, as Public corporations, Departmental undertakings, Municipal undertakings or Government companies. At present there are 53 State Road Transport Undertakings. Out of these transport undertakings, the Andhra Pradesh State Road Transport Corporation (APSRTC) is the first nationalized transport undertaking in the country. It is one of the biggest public sector undertakings run by the state government and also formed as the largest single bus company in the world.

PERIOD OF THE STUDY

The data covers for a period of 12 years ranging from 1992-93 to 2003-04. A twelve years period has been selected to analyze the information more meaningfully and focus attention on the quality of services offered by the corporation. Further this 12 years period is considered suitable to study the problems, trends on the service related factors which forms a sound basis for analysis. This Period covers significant changes in management policies, programmes of the APSRTC. During this period there were many problems with APSRTC such as union strikes, fire of buses due to various political agitations, and unrest of employees due to rising of voice by public and government for privatization of APSRTC.

SOURCES OF DATA

The study is based on secondary sources of data. The secondary data collected from various sources such as annual administration reports of the corporation, the records of the Management Information System (MIS) wing of APSRTC, inventory control and stores records of the corporation and different manuals prepared by the corporation from time to time.

DATA ANALYSIS

The data have been collected systematically, sorted, classified, and arranged in tabular forms which are amenable for analysis. The statistical package for social sciences (SPSS16.0) has been used. The various suitable statistical techniques like Arithmetic Mean (AM), Standard Deviation (SD), Coefficient of Correlation (CV), Linear Growth Rate (LGR), Compound Growth Rate (CGR), Coefficient of Correlation(r), and Students t- test of significance of growth rate have been applied to analyze the empirical data.

CONCEPTUAL FRAME WORK OF VARIOUS MEASSURES FOR EFFECTIVE INVENTORY MANAGEMENT IN TRANSPORT UNDERTAKINGS

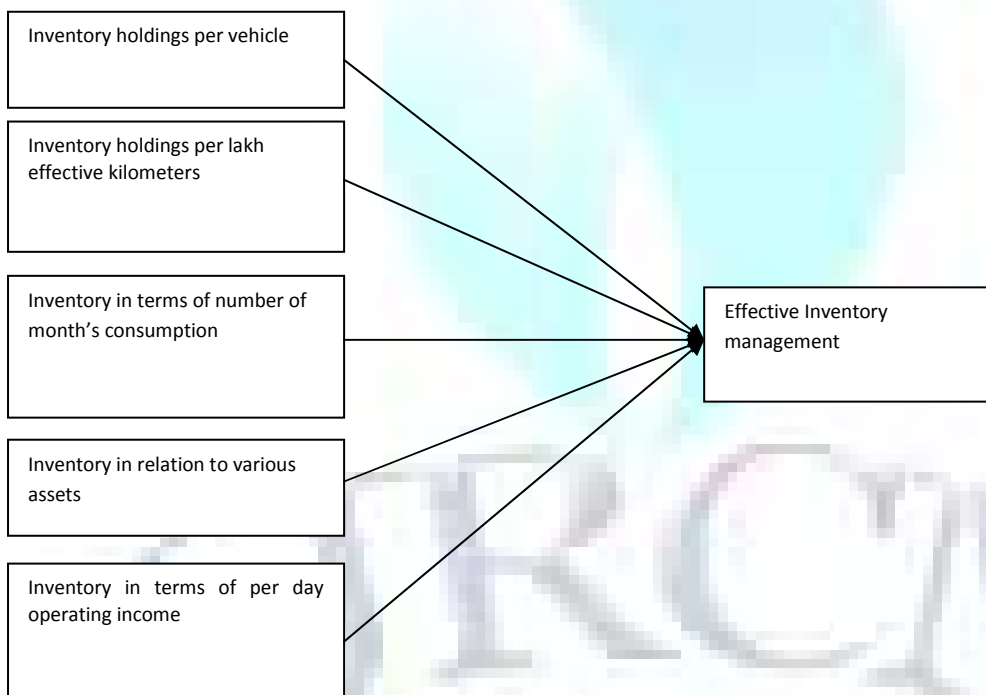


FIG 1: VARIOUS MEASURES FOR EFFECTIVE INVENTORY MANAGEMENT IN TRANSPORT UNDERTAKINGS

A theoretical frame work for the effective management of Inventories in transport undertakings has been developed based on the objectives of the study. The model is developed in consistence with the various measures that represent effective management of Inventories. The development of this model will provide a sound base to the transport authorities and will helps them in further examination as to what extent various policies can be formulated and upgraded for effective management of inventories.

ANALYSIS AND DISCUSSION

INVENTORY HOLDINGS IN APSRTC

Table 1, represents the position of inventory holdings in APSRTC during the period between March1993 and March 2004. It is clear from the table that the inventory of all the individual items of materials such as stores & spares, spring assemblies, tyres & tubes, lubricants, have shown continuous down trend except,

the HSD oil. It is also clear from the table that the growth of the total stores inventory was continuous from Rs. 45.58 crores to Rs. 75.01 crores during the period between March 1993 and March 1997. From March 1998 onwards the inventory in the total stores was continuously reduced and reached to Rs. 43.12 crores in March 2003 except in the year 1999-2000. But at the end of the year i.e. in 2003-04 the inventory level sharply increased to Rs. 45.71 crores. It is also clear that the percentage decrease in the inventory holdings of individual items of stores were stores and spares (36%) followed by springs (51%), tyres & tubes (81%), lubricants (53%), respectively. The percentage increase in the inventory holdings of HSD oil alone was 143 percent, further HSD oil alone accounted for more than 28 percent of the total stores inventory at the end of the study period followed by stores & spares with inventory more than 22 percent.

It is observed that there is a significant decreasing growth of 6.34 percent and 6.51 percent in stores & spares and springs inventory during the period between 1994-95 and 2003-04. The corresponding t - values are given by 3.06 and 2.59 respectively, which are significant at 5 percent level. There is a significant decreasing growth of 1.66 percent and 0.32 percent in lubricants and tyres & tubes inventory. The corresponding t - values are given by 6.38 and 7.58 respectively, which are highly significant at 1 percent level, while there is a significant increasing growth of 3.22 percent in HSD oil inventory and its corresponding t - value is given by 6.53, which is highly significant at 1 percent level. But it is found that there is an insignificant decreasing growth of 1.10 percent in the total stores inventory during the period between 1994-95 and 2003-04.

TABLE 1: INVENTORY HOLDINGS IN APSRTC AT THE END OF MARCH (IN CRORES OF RUPEES)

YEARS	Stores & spares	Spring assemblies	Tyres& tubes	Lubricants	HSD Oil	Other stores	Total stores
92-93	NA	NA	NA	NA	NA	NA	45.58 (100)
93-94	NA	NA	NA	NA	NA	NA	45.33 (99.45)
94-95	16.22 (100)	1.02 (100)	10.14 (100)	2.22 (100)	5.33 (100)	19.45 (100)	54.38 (119.31)
95-96	23.38 (144.15)	1.99 (195.09)	8.36 (82.45)	1.98 (89.19)	3.21 (60.23)	22.59 (116.14)	61.51 (134.95)
96-97	25.11 (154.81)	2.04 (200)	5.83 (57.49)	2.22 (100)	4.82 (90.44)	34.99 (179.89)	75.01 (164.57)
97-98	25.83 (159.25)	2.11 (206.86)	6.47 (63.81)	1.49 (67.2)	6.69 (125.52)	30.07 (154.61)	72.66 (159.41)
98-99	20.18 (124.42)	1.42 (139.21)	3.26 (32.15)	1.59 (71.63)	7.48 (140.34)	24.06 (123.71)	57.99 (127.23)
99-2K	23.01 (141.87)	1.94 (190.19)	3.97 (39.15)	1.67 (75.23)	9.68 (181.62)	22.91 (117.79)	63.18 (138.61)
2K-01	17.84 (109.98)	1.45 (142.15)	1.79 (11.65)	1.11 (50)	9.42 (176.74)	22.56 (115.98)	54.17 (118.85)
01-02	11.52 (71.03)	0.38 (37.25)	1.68 (16.56)	0.96 (43.24)	7.93 (148.79)	22.11 (113.68)	44.58 (97.81)
02-03	11.91 (73.42)	0.81 (79.42)	2.22 (21.89)	1.28 (57.65)	9.81	17.09 (87.87)	43.12 (94.61)
03-04	10.39 (64.05)	0.50 (49.01)	1.89 (18.63)	1.04 (46.85)	12.95 (242.97)	18.94 (97.37)	45.71 (100.29)
Mean	18.54	1.37	4.56	1.56	7.73	--	55.27
SD	5.85	0.66	3.01	0.47	2.87	--	11.07
CV	31.55	48.11	65.96	30.12	37.10	--	20.04
LGR	6.34	6.51	0.32	1.66	3.22	--	1.10
CGR	5.18	5.31	1.22	1.82	2.73	--	1.11
r-Value	0.70	0.63	0.92	0.90	0.90	--	0.20
t- Value	3.06	2.59	7.58	6.38	6.53	--	0.64

SOURCE: Calculations based on the Annual Administrative Reports and MIS Records of the Corporation from 1992-93 to 2003-04.

(NA: Not available)

The table 2, shows the number of vehicles in operation during the period from 1992-93 to 2003-04. It is observed from the table that in the base year of the study, the number of vehicles in operation was 14702 and it is gradually increased to 19013 in the terminal year of the study, registering an increase of 29 percent. It is observed that there is significant increasing growth of 2.70 percent in the number of vehicles in operation during the period understudy. The corresponding t - value is given by 9.98, which is highly significant at 1 percent level.

TABLE 2: NUMBER OF VEHICLES IN OPERATION (1992-93 TO 2003-04)

YEAR	NUMBER OF VEHICLES IN OPERATION
1992-93	14702 (100)
1993-94	15018 (102.15)
1994-95	15244 (103.69)
1995-96	15931 (108.36)
1996-97	16603 (112.94)
1997-98	17693 (120.34)
1998-99	18325 (124.65)
1999-2K	18841 (128.16)
2000-01	18965 (128.99)
2001-02	19322 (131.42)
2002-03	19005 (129.27)
2003-04	19013 (129.32)
Mean	17388.50
SD	1776.93
CV	10.22
LGR	2.70
CGR	2.80
r-Value	0.95
t- Value	9.98

SOURCE: Annual Administrative Reports of APSRTC from 1992-93 to 2003-04.

(Calculations based on the figures available in the annual administrative reports)

Thus, it is clear from the analysis that the number of vehicles in operation was increased by 29 percent In spite of increase in the number of vehicles in operation; the increase in the total stores inventory is absolutely zero. Though the inventory of total stores had increased during the first half of the study period, for the second half of the study period the total stores inventory was reduced.

INVENTORY HOLDINGS PER VEHICLE

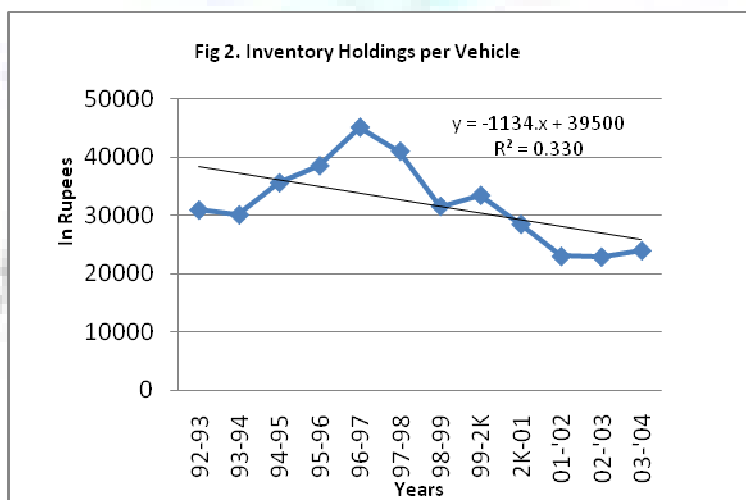
The inventory holdings per vehicle in APSRTC during the period form 1992-93 to 2003-04 are presented in table 3,(Fig 2). It may be observed from the table that the inventory holdings per vehicle were increased from Rs.31002 to Rs.45178 between March1993 and March 1997. From March 1998 onwards the inventory holdings were reduced continuously up to March, 2003 except in the year March, 2000. However, it is again increased from Rs.22962 to Rs.24044 in the terminal year of the study. The inventory holdings per vehicle were reduced by 22 percent during the study period, but it was increased by nearly 4 percent in the last year in comparison with 2002-2003. It is observed that there is a significant decreasing growth of 5.43 percent, 0.06 percent, and 0.95 percent in stores & spares, tyres & tubes and lubricants inventory per vehicle during the period between 1994-95 and 2003-04. The corresponding t - values are given by 4.52, 7.16, and 7.20 respectively, which are highly significant at 1 percent level. There is a significant decreasing growth of 6.11 percent in spring inventory per vehicle. The corresponding t- value is given by 3.34, which is significant at 5 percent level. Further, it is observed that there is a significant increasing growth of 4.07 percent in HSD oil inventory per vehicle. Its corresponding t- value is given by 5.12, which is highly significant at 1 percent level, while there is an insignificant decreasing growth of 3.53 percent in total stores inventory per vehicle.

TABLE 3: INVENTRY HOLDINGS PER VEHICLE IN APSRTC AT THE END OF MARCH (IN RUPEES)

YEARS	Stores & spares	Spring assemblies	Tyres& tubes	Lubricants	HSD Oil	Other stores	Total stores
92-93	NA	NA	NA	NA	NA	NA	31002 (100)
93-94	NA	NA	NA	NA	NA	NA	30184 (97.36)
94-95	10641 (100)	670 (100)	6652 (100)	1457 (100)	3497 (100)	12760 (100)	35677 (115.07)
95-96	14676 (137.91)	1249 (186.42)	5248 (78.89)	1243 (85.31)	2015 (57.62)	14180 (111.12)	38611 (124.54)
96-97	15123 (142.13)	1228 (183.28)	3512 (52.79)	1337 (91.76)	2903 (83.01)	21075 (165.16)	45178 (145.72)
97-98	14599 (137.19)	1193 (178.05)	3657 (54.97)	842 (57.79)	3782 (108.15)	16996 (133.19)	41068 (132.46)
98-99	11013 (103.49)	775 (115.67)	1779 (26.74)	868 (59.57)	4082 (116.73)	13130 (102.89)	31647 (102.08)
99-2K	12213 (114.78)	1029 (153.58)	2107 (31.67)	886 (60.81)	5138 (146.93)	12160 (95.29)	33533 (108.16)
2K-01	9406 (88.39)	765 (114.18)	944 (14.19)	585 (40.15)	4967 (142.03)	11896 (93.22)	28563 (92.13)
01-02	5962 (56.02)	197 (29.41)	869 (13.06)	497 (34.12)	4105 (117.38)	11443 (89.67)	23073 (74.42)
02-03	6267 (58.89)	427 (63.74)	1169 (17.57)	674 (46.25)	5162 (147.61)	8993 (70.47)	22962 (74.06)
03-04	5465 (51.35)	263 (39.25)	995 (14.95)	547 (37.54)	6812 (194.79)	9962 (78.07)	24044 (77.55)
Mean	10536.50	779.60	2693.20	893.60	4246.30	--	32128.50
SD	3710.00	394.03	2015.83	343.25	1347.55	--	7110.63
CV	35.21	50.54	74.85	38.41	31.73	--	22.13
LGR	5.43	6.11	0.06	0.95	4.07	--	3.53
CGR	4.47	5.04	1.11	1.48	3.33	--	3.76
r-Value	0.82	0.73	0.91	0.92	0.85	--	0.58
t- Value	4.52	3.34	7.16	7.20	5.12	--	2.22

SOURCE: Calculations based on the Annual Administrative Reports and MIS Records of the Corporation from 1992-93 to 2003-04.

(NA: Not available)



Thus, it is clear that the inventory holdings of all the items were reduced during the period understudy except HSD oil. The highest decrease in the individual items of stores was tyres & tubes (85 percent) followed by lubricants (62 %) springs (61%) and stores and spares (49%) respectively. The general assumption is that, the increase in the number of buses in operation will automatically increase the level of inventory holdings. Hence, an analysis of the trends in the

inventory is done along with the trends in the number of vehicles to know whether the increase in the number of buses (Table 2) in operation has influenced the inventory holdings per vehicle.

It is clear from the table that the total inventory holdings per vehicle was reduced by 22 percent while the number of buses in operation was increased by 29 percent during the same period. Thus, it is evident that there is a negative change and it indicates the effective utilization of inventory holdings per vehicle of the corporation. The analysis of annual rate of change both in the inventory as well as in number of vehicles in operation indicates that there has been an increase in both of them up to 1996-97, but the increase in the number of buses in operation was much more consistent as compared to the increase in the inventory. Further, the growth in the inventory has shown a significant decline from 1997-98 onwards as against the corresponding increase in the number of buses. Hence, it is assumed that the increase in the number of buses has not influenced the level of inventory during the periods under study. The analysis about the inventory holdings per vehicle indicates that what amount of inventory holdings is being maintained by the corporation to operate a bus per year. If inventory per vehicle shows a declining trend, it assumes economic utilization of inventory by avoiding the unnecessary accumulation of the materials. On the other hand, an increase in the inventory holdings per vehicle indicates, large amount of accumulation of inventory per vehicle and uneconomic utilization of materials as well as unnecessary accumulation of inventory. Since the inventory holdings per vehicle has been showing the downtrend over the periods under study. It can be concluded that the corporation is having tight control on its inventories and it indicates the efficiency of the management in maintaining the materials.

INVENTORY HOLDINGS PER LAKH EFFECTIVE KILOMETERS

The inventory holdings per lakh effective kilometers are shown in the Table 4(Fig 3). As per the table, it is interesting to note that the total inventory per lakh kilometers show an erratic trend. It was increased from Rs.28814 to Rs. 41673 during the period between 1992-93 and 1996-97, except in the year 1993-94. From 1997-98 onwards it was reduced to Rs. 20802 in 2002-03 and again increased to Rs. 21906 in 2003-04, which is an increase of Rs. 1105 when compared with the previous year i.e. 2002-03. It is observed that there is an insignificant decreasing growth of 3.44 percent in total stores inventory per kilometer during the period under study.

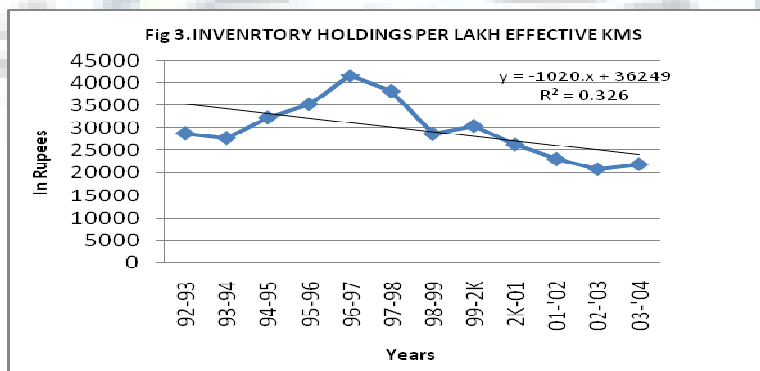
It is also noted that during the study period the inventory holdings of the individual items per lakh effective kilometers for stores & spares, springs, tyres & tubes, lubricants have reduced considerably except the HSD oil. The inventory holdings per lakh effective kilometers of HSD oil was increased from Rs.3169 in the base year to Rs.6207 in the terminal year of the study, registering an increase of 96 percent. The highest decrease in the individual items of stores was tyres & tubes (85%) followed by lubricants (62%), spring (60%) and stores & spares (48%). It is found that there is a significant decreasing growth of 5.54 percent, 0.11 percent, and 0.99 percent in stores & spares, tyres & tubes, and lubricants inventory per kilometer during the period between 1994-95 and 2003-04. The corresponding t – values are given by 4.42, 7.23 and 7.44 respectively, which are highly significant at 1 percent level. Further, there is a significant decreasing growth of 6.17 percent in springs inventory per kilometer and its corresponding t – value is given by 3.31, which is significant at 5 percent level, while it is found that there is a significant increasing growth of 3.87 percent in HSD oil inventory per kilometer. The corresponding t – value is given by 5.86, which is highly significant at 1 percent level.

TABLE 4: INVENTORY HOLDINGS PER LAKH EFFECTIVE KMS IN APSRTC AT THE END OF MARCH (IN RUPEES)

YEARS	Stores & spares	Spring assemblies	Tyres& tubes	Lubricants	HSD Oil	Other stores	Total stores
92-93	NA	NA	NA	NA	NA	NA	28814
93-94	NA	NA	NA	NA	NA	NA	27785
94-95	9647 (100)	606 (100)	6030 (100)	1320 (100)	3169 (100)	11567 (100)	32339 (112.23)
95-96	13378 (168.67)	1144 (188.78)	4804 (79.67)	1138 (86.21)	1845 (58.23)	12981 (112.23)	35290 (122.47)
96-97	13950 (144.61)	1134 (187.12)	3239 (53.72)	1234 (93.48)	2678 (84.51)	19438 (168.04)	41673 (144.63)
97-98	13593 (140.91)	1110 (183.16)	3405 (56.46)	785 (59.46)	3520 (111.07)	15824 (136.81)	38237 (132.71)
98-99	9995 (103.61)	703 (116.01)	1615 (26.78)	787 (59.62)	3704 (116.89)	11916 (103.01)	28720 (99.67)
99-2K	11105 (115.12)	936 (154.46)	1916 (31.78)	806 (61.06)	4671 (147.39)	11055 (95.57)	30489 (105.82)
2K-01	8656 (89.72)	704 (116.17)	868 (14.39)	539 (40.84)	4571 (144.25)	10946 (94.64)	26284 (91.21)
01-02	5963 (61.81)	197 (32.51)	869 (14.41)	497 (37.65)	4105 (129.54)	11445 (98.94)	23076 (80.08)
02-03	5746 (59.56)	391 (64.52)	1071 (17.76)	618 (46.82)	4732 (149.32)	8244 (71.27)	20802 (72.19)
03-04	4979 (51.62)	239 (39.50)	906 (15.01)	499 (37.81)	6207 (195.81)	9076 (78.47)	21906 (76.02)
Mean	9701.20	716.40	2472.30	822.30	3920.20	--	29617.92
SD	3362.98	361.55	1830.53	307.70	1226.13	--	6437.58
CV	34.67	50.47	74.04	37.42	31.28	--	21.74
LGR	5.54	6.17	0.11	0.99	3.87	--	3.44
CGR	4.56	5.09	1.13	1.50	3.19	--	3.67
r-Value	0.81	0.72	0.92	0.92	0.88	--	0.57
t-Value	4.42	3.31	7.23	7.44	5.86	--	2.20

SOURCE: Calculations based on the Annual Administrative reports and MIS records of the corporation from 1992-93 to 2003-04.

(NA: Not available)



The Table 5, shows the average values of the inventory holdings per vehicle and per lakh effective kilometers. It is clear from the table that the decrease in the total inventory held per vehicle in money units and the total inventory held per lakh effective kilometers as shown in the respective tables during the period under study shows the efficiency of the management in managing the inventories which is an encouraging situation. Further, the inventory levels and the consumption rates of materials in APSRTC can be better understood by an analysis of inventory held in terms of number of month's consumption.

TABLE 5: AVERAGE INVENTORY HOLDINGS OF MATERIALS

Particulars	Average inventory holdings (in crores of rupees)	Average inventory holdings per vehicle (in rupees)	Average inventory holdings per lakh kilometers (in rupees)
Stores & spares	18.54	10537	9701
Springs	1.37	780	716
Tyres & tubes	4.56	2693	2472
Lubricants	1.56	894	822
HSD Oil	7.73	4246	3920
Other stores	23.48	13260	12250
Total stores	57.23	32410	29882

SOURCE: Estimates based on the Annual Administrative Reports of the Corporation from 1992-93 to 2003-04

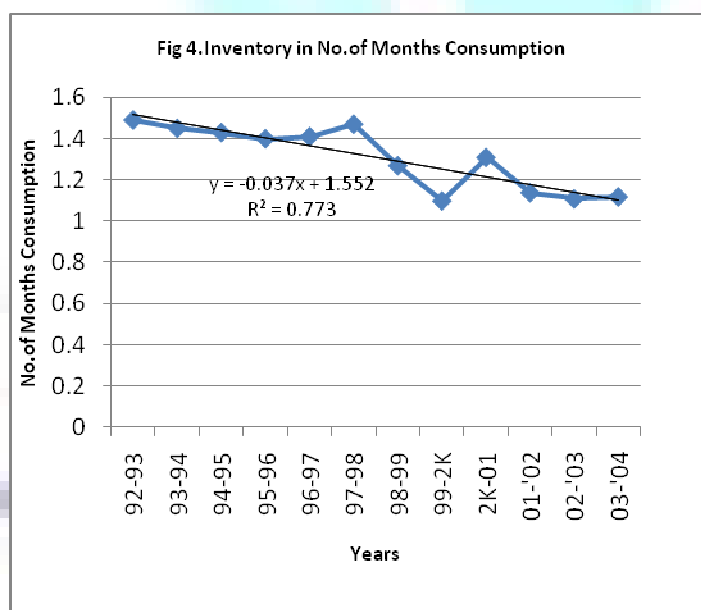
INVENTORY IN TERMS OF NUMBER OF MONTHS CONSUMPTION

The amount of inventory held in terms of number of month's consumption and the amount of capital blocked on the inventory are the indicators to measure the performance of inventory management of the corporation. The inventory in terms of number of month's consumption in APSRTC is shown in table 6(Fig 4). The figures indicate the amount of material stocked in terms of monthly consumption. As the value increases towards higher levels, there is an indication of larger amounts of stock in relation to the rate of consumption consequently block up of larger amount of capital. As the value decreases towards lower levels, there is an indication of lesser inventories, hence lesser amount of capital blocked up. As per the table, it is clear that the total stores inventory in APSRTC is reduced from 1.49 months in the year 1992-93 to 1.12 months in the year 2003-04. The inventory holdings in terms of monthly consumption are highest in the year 1992-93 and lowest in the year 1999-2000. The reduction in the inventory in terms of number of month's consumption is a good sign and is the most desirable situation.

TABLE 6: INVENTORIES IN TERMS OF No. OF MONTHS CONSUMPTION

YEAR	Inventories in terms of Number of Months Consumption
1992-93	1.49
93-94	1.45
94-95	1.43
95-96	1.4
96-97	1.41
97-98	1.47
98-99	1.27
99-2K	1.10
2K-01	1.31
01-02	1.14
02-03	1.11
03-04	1.12

SOURCE: Estimates are based on the Annual Administrative Reports of the Corporation from 1992-93 to 2003-04.



LEVEL OF INVENTORY IN RELATION TO VARIOUS ASSETS

The table 7 shows the share of inventory in APSRTC in relation to current assets, and total assets. The figures in the table are estimated using the ratios of inventory as percentage of current assets and total assets. It is clear from the table that the inventory as a percentage of current assets was ranging between a minimum of 19.52 and a maximum of 29.48 percent during the period under study. This indicates that for every Rs.100 of investment on current assets, the inventory is accounted for a minimum of Rs19.52 and a maximum of Rs.29.48. It is also evident that this ratio is increasing continuously from the base year of the study up to 1996-97 and then shows an erratic trend between 1997-98 and 2003-04. Since, inventory being the least liquid component of the current assets, lower ratio indicates more liquidity of the corporation and higher ratio indicates the less liquidity of the corporation. The inventory as a ratio of total assets

indicates the relative proportion of inventory in total assets. The average share of inventory in total assets was approximately 3.45 percent. It was lowest at 2.05 in 2002-03 and highest at 4.82 in 1996-97. It is to be noted that the ratio is showing a downtrend in the later part of the study period. It indicates that a larger amount of investment was made on the fixed assets such as purchase of new buses, construction of buildings for depots and bus stations etc., which are an encouraging situations and a good sign of managing the inventories.

TABLE 7: LEVEL OF INVENTORY IN RELATION TO VARIOUS ASSETS

Year	Inventory (in crores of rupees)	Percentage of inventory to total Assets	Percentage of inventory to current Assets
1992-93	45.58	4.27	19.69
93-94	45.33	3.97	19.52
94-95	54.38	4.35	21.9
95-96	61.51	4.36	24.46
96-97	75.01	4.82	29.48
97-98	72.66	4.21	28.01
98-99	57.99	3.13	21.75
99-2K	63.18	3.21	22.54
2K-01	54.17	2.69	24.58
01-02	44.58	2.16	20.51
02-03	43.12	2.05	19.96
03-04	45.71	2.08	20.61

SOURCE: Estimates are based on the Annual Administrative Reports of the Corporation From 1992-93 to 2003-04.

LEVEL OF INVENTORY IN TERMS OF PER DAY OPERATING INCOME

The table 8(Fig 5) shows the level of inventory in APSRTC in relation to its operating revenue. The figures are estimated based on the ratio of inventory to per day operating income. It is clear from the table that the operating revenue of the corporation was Rs.2775.47 crores in 2003-04 while it was Rs. 1005.55 crores in 1992-93. The total operating revenue of the corporation was changed by 76 percent while, the inventory was changed by 65 percent between the period under study. This shows that the change in the inventory is less in comparison with the changes in operating revenue of the corporation. Since the former is significantly higher than that of the later, it indicates the lesser amount of inventory with the corporation.

The figures on the ratio of inventory to per day operating income show that it was maximum at 16.51 at the base year of the study and minimum at 5.93 in 2002-03. It is to be noted that the value was continuously reduced from 14.16 to 5.93 between 1997-98 and 2002-03. However it was increased to 6.01 in the terminal year of the study and indicates that, to achieve a required amount of operating income, a lowest of 5.93 percent and a highest of 16.51 percent of inventory was maintained during the period under review. It is observed that there is a significant decreasing growth of 9.07 percent in the ratio of inventory to per day operating income during the study period. The corresponding t – value is given by 7.85, which is highly significant at 1 percent level. It is also evident that the decrease in the inventory in terms of per day operating income is a good sign of inventory maintenance.

TABLE 8: LEVEL OF INVENTORY IN TERMS OF PER DAY OPERATING INCOME

Year	Inventory in crores	Total operating revenue (in crores of rupees)	Operating revenue per day (in crores of rupees)	Percentage of Inventory in terms of per day operating income
1992-93	45.58	1005.55	2.76	16.51
93-94	45.33	1198.15	3.28	13.82
94-95	54.38	1317.07	3.60	15.10
95-96	61.51	1533.63	4.20	14.65
96-97	75.01	1659.29	4.55	16.48
97-98	72.66	1871.69	5.13	14.16
98-99	57.99	1984.19	5.43	10.67
99-2K	63.18	2244.50	6.15	10.27
2K-01	54.17	2450.03	6.71	8.07
01-02	44.58	2387.45	6.54	6.82
02-03	43.12	2654.92	7.27	5.93
03-04	45.71	2775.47	7.61	6.01
Mean	--	--	--	11.54
SD	--	--	--	4.07
CV	--	--	--	35.27
LGR	--	--	--	9.07
CGR	--	--	--	9.64
r-Value	--	--	--	0.93
t- Value	--	--	--	7.85

Source: Annual Administrative Records of the Corporation from 1992-93 to 2003-04

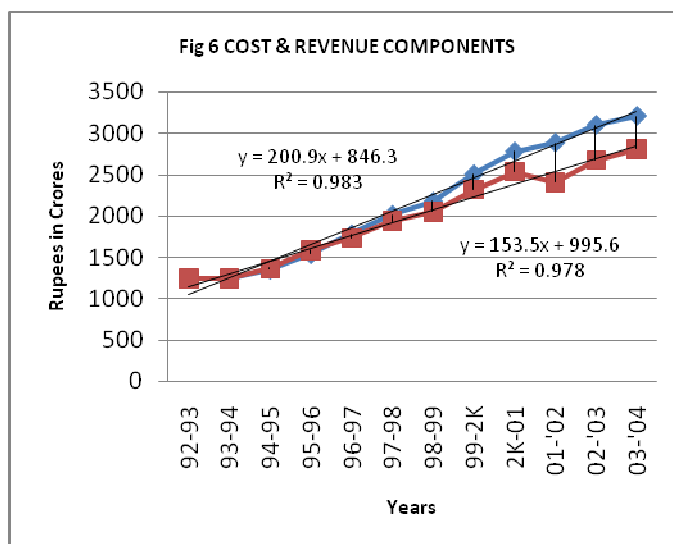
COST AND REVENUE COMPONENTS OF APSRTC

The Table 9(Fig 6) shows the cost components and the revenue components of APSRTC during the period from 1992-93 to 2003-04. It is clear from the table that the total cost increased steadily from Rs.1245.33 crores in 1992-93 to Rs 3206.31crores in 2003-04 and in terms of percentage, the increase was 157 percent. Similarly the total revenue also showed a steady improvement over the years under review except in the year 2001-02. It was Rs. 1246.98 crores in the base year of the study and Rs. 2809.72 crores in the terminal year of the study, registering a growth rate of 125 percent.

TABLE 9: COST AND REVENUE COMPONENTS OF APSRTC (In Crores)

	Total cost	Total revenue
92-93	1245.33	1246.98
93-94	1247.15	1251.15
94-95	1352.50	1367.28
95-96	1539.89	1584.96
96-97	1781.57	1735.54
97-98	2016.18	1938.97
98-99	2173.94	2050.00
99-2K	2504.81	2322.26
2K -01	2777.88	2535.55
01-02	2882.89	2406.06
02-03	3098.17	2677.38
03-04	3206.31	2809.72

(Source: Annual Administrative Reports and MIS Records of the Corporation from 1992-93 to 2003-04)



It is evident from the table that the total revenue of the corporation showed an uptrend, on the other hand the total expenditure also showed an uptrend. The excess of expenditure over the revenue resulted losses expect for the years 1992-93, 1993-94, 1994-95 and 1995-96. However in the later part of the study period, the APSRTC had been making losses every year.

The data obtained on cost and revenue components of APSRTC is then compared with Inventory management practices of the corporation during the same period under study. It is evident that the Inventory management in APSRTC was good and did not show any impact on the losses obtained by the corporation.

CONCLUSION

The analysis of inventory management in APSRTC with respect to various parameters such as inventory per vehicle, inventory per lakh effective kilometers, and inventory in terms of number of month's consumption revealed that, the inventory levels in APSRTC, though highest in the beginning of the study period, decreased during the latter part of the study period. HSD oil inventory which constituted major part of total stores inventory had been increasing at much faster rate with respect to various parameters for instance, the growth rate of HSD oil inventory per vehicle and per lakh effective kilometers is increased by 95 percent.

Thus, it is observed that, the performance of APSRTC in terms of inventory levels of stores & spares, spring assemblies, tyres & tubes, lubricants per vehicle and per lakh effective kilometers basis during the study period has been encouraging and is the most desirable situation. An analysis of inventory in terms of number of month's consumption concluded that, the amount of material stocked with the corporation shown a reduction in the second part of the study period then compared to the beginning of the study period, as a result, lesser amount of capital was locked up in the inventories. Further, the level of inventory in relation to current assets, total assets and per day operating income concluded that there is a decreasing growth of inventory in all the three parameters. Since inventory being the least liquid component, the reduction in the inventory levels both in the current assets and total assets, indicates improvement in the liquidity of the corporation.

All these key parameters conclude the efficiency of the corporation in managing its Inventories. Hence, it is opined that the practices that were adopted by the corporation in managing its Inventories gives good results and did not show any influence on the losses of the corporation.. It is therefore suggested that the corporation should adopt the same practices in future also, to keep the inventory levels of the materials to a barest minimum.

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4. The RTC ACT (1950), Section-18.

IMPACT OF CHANGES IN ENTRY LOAD STRUCTURE OF MUTUAL FUND SCHEMES – EVIDENCE FROM INDIAN MUTUAL FUND INDUSTRY

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ABSTRACT

Mutual fund Investors were expected to benefit from the initiative taken by the Securities Exchange Board of India (SEBI) i.e. to remove entry load on all mutual fund schemes from 1st August 2009. This initiative was targeted at increasing the retail investors' participation in mutual funds but, it does not influence the investment style of investors who invest more than Rs. 5 crores. Removal of entry load brings certain amount of merits as well as demerits to the core participants of mutual fund industry say Investors, Distributors, Government and obviously Mutual fund. This study proposes to articulate the impact of changes in entry load structure on monthly Net New Money (Difference between redemptions and sales of mutual fund units) of mutual fund industry. The study considers 40 months Net New Money (December'2007 to March'2011); 20 months prior to changes in entry load and 20 months after changes in entry load structure. In order to analyse statistically significant impact on Net New Money on account of removal of entry load, Shapiro Wilk test (Normality), Durbin Watson test (Serial correlation of residual Net New Money), ANOVA (Homogeneity of average Net New Money) and Levene's statistic (Homogeneity of variance of Net New Money) were used and witnessed statistical insignificance i.e. changes in entry load structure did not impact the Net New Money during the study period.

KEYWORDS

Distributors, Entry Load, Mutual fund, Net New Money, Retail Investors, SEBI.

INTRODUCTION

Mutual funds are a prospective investment avenue (Khurana & Panjwani, 2010) for investors who would like to diversify their risks and avail the services of professional fund managers. In mutual funds, investors' investments are pooled into a scheme with a well defined investment objective and deployed into securities investments in the capital market. Mutual funds are constituted in the form of trusts, which have a Sponsor, Trustees, Asset Management Company (AMC) and Custodian. The trustees of the mutual fund hold its property for the benefit of the unit holders. Custodian, who is registered with SEBI, holds the securities of various schemes of the fund in its custody. The AMC, approved by SEBI, manages the funds by making investments in various types of securities in the capital market.

MUTUAL FUNDS IN INDIA

Mutual funds play an important role in mobilising the household savings for deployment in capital markets. The gross mobilisation of resources by all mutual funds during 2009-10 indicated an increase of 84.7% over the previous year. Redemption also rose by 82.2%. The assets under management by all mutual funds increased by 47.2% at the end of March 2010 compared at the end of March 2009. Unlike the previous year, private sector mutual funds dominated resource mobilisation efforts during 2009-10. All the open-ended and interval schemes of mutual funds recorded positive net inflows, the close-ended schemes witnessed net outflows during the financial year.

TABLE 1: MUTUAL FUND INDUSTRY KEY STATISTICS (Rs. Crore)

Period	Gross mobilisation	Redemption	Net Inflow	Assets at the end of period
99-00	61,241	42,271	18,970	1,07,946
00-01	92,957	83,829	9,128	90,587
01-02	1,64,523	1,57,348	7,175	1,00,594
02-03	3,14,706	3,10,510	4,196	1,09,299
03-04	5,90,190	5,43,381	46,808	1,39,616
04-05	8,39,708	8,37,508	2,200	1,49,600
05-06	10,98,149	10,45,370	52,779	2,31,862
06-07	19,38,493	18,44,508	93,985	3,26,292
07-08	44,64,376	43,10,575	1,53,802	5,05,152
08-09	54,26,353	54,54,650	-28,296	4,17,300
09-10	100,19,022	99,35,942	83,080	6,13,978

Source: Annual report – Securities Exchange Board of India – 2009-2010

TABLE 2: SCHEME RELATED KEY STATISTICS

Category	Open-ended	Closed-ended	Interval	Total
Income	210	346	35	591
Equity	318	9	1	328
Balanced	31	1	--	32
Liquid / Money	51	--	--	51
Gilt	37	--	--	37
ELSS (Tax Planning)	36	12	--	48
ETFs (Including Gold ETFs)	28	--	--	28
Fund-Of-Funds	16	--	--	16
Total	727	368	36	1131

Source: Monthly report 'March 2011 – Association of Mutual Funds in India

When investors invest in mutual funds, for investment services provided by AMC, two types of expenses were hitherto charged to investors, upfront expenses familiarly known as entry load, and annual scheme related expenses, which includes Management fees. Besides, schemes also charge exit load for short-term redemptions made by investors. The entry and exit loads are costs to the investors at the time of investing as well as at the time of redeeming mutual fund schemes. Entry load may vary from 2.25% to 2.75% depending upon the style investment and investment objective of the scheme. Especially when any Global Fund-Of-Funds or Thematic funds are floated that would certainly attract 2.75% as entry load. If mutual fund offers a New Fund Offer, which has a property of lock-in period for about 3 years, entry load is waived off due to the long-term nature of the investments. Entry load collected by mutual fund is used to compensate the intermediaries (Distributors) who play a dual role - that of an adviser to investors (New investment based on investors' risk appetite, Primary documentation, Fund Switching, Systematic Investment Plan, Systematic Transfer Plan, Closure and Miscellaneous services) and strategising markets for the mutual fund products.

Right from the inception of mutual funds in India till 31st July 2009, all fund houses charged entry load as percentage of amount invested and this proportion is used to compensate the intermediaries for their various services. On 31st December 2008, SEBI mandated no entry load on investments made directly by the investors (not routed through any distributor). Subsequently, in cases of all mutual fund investments, it was felt that to empower the investor in deciding commissions paid to the distributors and also ensure transparency in commissions being paid, the amount of payment should be decided by investor depending on level of service received, not by AMC (as in form of entry load). Upfront commission to distributors is to be paid by the investor to the distributor directly depending on quality of service rendered. It is expected that this would segregate the streams of payment for the two roles of distributor, a point of sale for the AMC and an adviser to the investor. On account of this reform, the initial impact will be on

1. The interest of distributors to market MF schemes (Stereotype towards the schemes that would enhance the incentives and not to concentrate on the schemes that does not offer monetary value addition and also the intermediaries provoke the investors to redeem their existing mutual fund investments and stress on new purchases)
2. The investors may land up in investing into schemes that do not meet their investment objective
3. Overall profitability of mutual funds (Gupta, 2009)
4. Service tax collections by the Government etc. (Bajaj and Venkitesh, 2009)

LITERATURE REVIEW

Walker (1997) had extensively used a data set of 222 mutual funds that were described by Fund Watch as growth oriented and included funds in existence for sufficient time to have a historical five year track record. He proposed that direct causal relationships exist between a fund's current relative performance and historical performance rankings. He had opted 4 exogenous factors namely Risk, Size, Degree of Diversification and Management fees and linked those variables to endogenous variables namely historical performance rankings and current performance of the funds. He concluded that the use of past performance and widely accepted indicators of performance as predictors of success in mutual fund selection was marginally successful. Significant specification errors, lack of consistency among regression coefficients and path signs that contradict widely accepted financial theories regarding diversification, risk, and cost show that investment selection success is impacted by random chance or unobserved variables far more than predictable patterns. Finally, he portrayed that identification funds charge very low management fees and select a diversified group of these funds.

Prather, Bertin and Henker (2004) examined the mutual fund performance by using an integrated approach to analyse a large set of mutual funds and a thorough list of fund specific characteristics. The study covers the period of 1996-2000 and extensively considers 5000 distinct equity funds. They have used multifactor regression model for analysis. The main fund specific factors focused were Popularity variables, Growth variables, Cost variables, and Management variables. The analysis exhibited that Expenses ratio (Parameter estimate: -1.822, t-statistic: -5.36) is statistically significant at 1% level. Literature on 'Reform of Mutual Funds in India' (2004) by Cadogan Financial, UK has highlighted the power of distributors who transform the basis of competition and why majority of investors rely heavily on their advisers.

Lin (2006) examined three types of Taiwan mutual funds over various investment horizons. The explanatory variables included in the regression were NAV, Current Yield, Turnover rate, Expenses ratio, and Load charges. From the analysis, it was evident that expenses ratio negatively correlated (Beta = -4.8556) when performance evaluated for 3 months horizon and positively correlated for other investment horizons. There is no statistically reliable relation between the performance with Current yield, turnover ratio, and load charges.

Damodaran (2007) noted that if the stock market regulator has its way, investors could walk into the office of a mutual fund firm, buy any of its funds and walk out without paying any kind of entry load. SEBI proposes to waive the entry fee for direct applications received by mutual fund companies either through their investor service centers' or the Internet. SEBI's argument is that since the entry charge is utilized by fund firms towards meeting the distributor's commission, investors making direct investments shouldn't be asked to pay this charge. If implemented, the plan can bring down the cost of investing in mutual funds.

Dhirendra Kumar (2007) emphasised the current norms have been unfair to the do-it-yourself kind of investor who thinks he doesn't need guidance or advice of the distributors. But these investors have no incentive for going to the fund company as he still had to pay the entry fee. **Ajay Bagga (2007)** detailed that SEBI's proposal has merit, but adds that firms need to ensure that the direct route is not exploited by the investors. "Since there will be no entry load, investors can make quick entry and exit from the fund depending on the stock market movement. So the industry will need to ensure that there are sufficient exit barriers also.

In connection with the assortment of services offered by intermediaries, 'Retail Distribution Review' (2008), a report by Financial Services Authority-United Kingdom (FSA) asserts that there needs to be a distinction between 'Advice' and 'Sales'. Accordingly, advisers need to be independent in their remuneration that is determined without product provider influence. FSA has set out reduction of commissions paid by product provider in stages with year 2013 as final time line for complete detachment of adviser remuneration from product providers' remuneration. In Australia, Future of Financial Advice reforms have been undertaken to tackle conflicts of interest that had threatened advice generally passed on to distributors by AMC and thus envisages advisers having their own "product neutral" charges.

Saikat Das (2009) stated that with SEBI removing the entry load from purchase of mutual funds, wealth advisory firms find reason to rejoice such a decision foreseeing huge market potential for them. Going forward, such a decision is expected to give "big push" to the wealth management services which is still at a nascent stage in India. Wealth managers believe that this move may lead to a dominant emergence of advisory services considering the virtual end of distribution services in mutual fund schemes. They are of the opinion that investors will not desist from seeking investment advice and portfolio services. If they deliver quality advisory backed by strong independent research, retail investors would not hesitate to accept wealth management services at a nominal cost of 1-2 per cent advisory fees. After all, selection among 300-400 equity schemes is no joke. Earlier, major distributors were selling MF schemes charging around 2.25 per cent entry load - which was deducted from investors' money. There were cases of large scale "push selling" in a pass back system wherein an independent financial advisor shares a part of his commission with the investor by pushing a particular mutual fund scheme, which may not be worth buying, according to the wealth managers. **Kaustav Majumdar (2009)** accentuated that the mantle of power is going to shift from product pushers into a holistic financial planning model wherein any wealth advisory service with a strong research background is bound to witness triple digit growth, provided MF industry grows by 30 per cent CAGR.

Rajesh Saluja (2009) mentioned that SEBI's decision is both in the interest of investors and wealth managers. It leads to transparency with no involvement of hidden cost like load structure. Under this scenario, advisory is the only way forward. **Krishnan Sitaraman (2009)** emphasised as a concept the move is very good as it links loads (fee) to the extent of service rendered by the distributors, but the key issue is implementation. With poor financial awareness among investors, operational difficulties would always be there with this norm. Mutual fund investors, at present pay an entry load (or commission) of 2.5 per cent to the distributors. Besides that, asset management companies pay a commission of anything between 50 basis points and 3.5 per cent to their distributors.

OBJECTIVE OF THE STUDY

To study the impact of changes in entry load structure of mutual fund schemes in terms of Redemptions (Withdrawals) and Sales (New purchases by the investors) made by the Mutual Fund houses in India.

DATA AND METHODOLOGY

The present study considers the entire mutual fund schemes offered in India. Currently Indian mutual fund industry consists of 41 (as on March'2011) AMCs offering multiple schemes that would cater to the needs of various categories of investors. This study proposes to consider the consolidated Net New Money of Indian Mutual fund industry because abolishment of entry load charges from 1st August 2009 would have presumably influenced the redemptions and sales made by the fund houses during the period of study. Theoretically, Net New Money (NNM) is the term used to understand the difference between the Redemptions and Sales made by the funds during specific period. The NNM of various fund houses have been obtained from Association of Mutual funds in India (AMFI) for 40 months period (From December'2007 to March'2011) that would exactly split the NNM for 20 months period in order to have precise estimation.

TESTABLE HYPOTHESIS

1. The Net New Money during the study period follows normal distribution.
2. There is no significant Auto correlation (ACF) between prior month Net New Money and current month Net New Money i.e. Prior month Net New Money do not contain any evidences to predict current month Net New Money (Mean value of Residual Net New Money is zero).
3. There is no significant difference between average Net New Money before and after removal of entry load ($\mu_{\text{Before}} = \mu_{\text{After}}$).
4. The Variance of Net New Money before and after removal of entry load is homogenous ($\sigma^2_{\text{Before}} = \sigma^2_{\text{After}}$).

The data analysis has been categorised into 4 distinctive parts:

1. Analyse the descriptive data structures pertaining to Net New Money including the test for normality (Symmetrical departure of the Net New Money using Shapiro Wilk test),
2. Test the emergence of significant autocorrelation among residual Net New money using Durbin Watson test,
3. Analyse the homogeneity of variance of Net New Money for changes in entry load structure, and
4. Analyse the homogeneity of mean of Net New Money for changes in entry load structure.

SHAPIRO-WILK TEST FOR NORMALITY OF NET NEW MONEY

Shapiro Wilk (1965) test has been used to test the null hypothesis that the sample $NNM_t, NNM_{t+1}, NNM_{t+2}, \dots, NNM_{t+n}$ are came from a normally distributed data structure against the alternate hypothesis that the sample does not support normal distribution. The test statistics can be computed as follows,

$$W = \frac{\left(\sum_{i=1}^n a_i x_{(i)}\right)^2}{\sum_{i=1}^n (x_i - \bar{x})^2} \dots\dots\dots (1)$$

Where,

- a) $X_{(i)}$ is the i^{th} order statistic, i.e., the i^{th} -smallest number in the sample NNM
- b) X_i - Sample NNM
- c) \bar{x} - Average NNM during the study period
- d) a_i - Appropriate constant obtained through aggregating the expected values of order statistics of independent and identically distributed random variables from standard normal distribution as well as the covariance of those order statistics.

DURBIN WATSON STATISTIC FOR AUTO CORRELATION FUNCTION (ACF)

Since, the collected Net New Money follows time series regression model, the impact of independent variable can be computed by Ordinary Least Square (OLS) method and often the residual (Error: Difference between the Actual Net New Money and the Predicted Net New Money through the regression model) component in the regression model are not independent but instead are autocorrelated. Hence, it is highly essential to detect the autocorrelations. Durbin Watson (1950) test statistic for autocorrelation assumes that the residuals are stationary and normally distributed with mean zero. It tests the null hypothesis that the residual Net New Money are not correlated against the alternate hypothesis the residuals are autocorrelated. If the residuals are autocorrelated, there may be consequences for the computed results.

- a) The estimated regression coefficients no longer have the minimum variance property
- b) The Mean Square Error (MSE) may seriously underestimate the variance of the error terms
- c) The computed standard error of the estimated parameter values may underestimate the true standard error, in which case the 't' values and confidence intervals may be incorrect.

The test statistic as follows,

$$d = \frac{\sum_{t=2}^T (e_t - e_{t-1})^2}{\sum_{t=1}^T e_t^2} \dots\dots\dots (2)$$

Where,

e_t - Error(Actual Net New Money - Predicted Net New Money) term of the current period
 e_{t-1} - Error(Actual Net New Money - Predicted Net New Money) term of the previous period

LEVENE'S STATISTIC FOR HOMOGENIETY OF VARIANCE OF NET NEW MONEY

Levene's (1960) test is an inferential statistic used to assess the equality of in different samples. Some common statistical procedures assume that variances of the populations from which different samples are drawn are equal. Levene's test assesses this assumption. It tests the null hypothesis that the population variances are equal. If the resulting p-value of Levene's test is less than critical value (typically 0.05), the obtained differences in sample variances are unlikely to have occurred based on random sampling. Thus, the null hypothesis of equal variances is rejected and it is concluded that there is a difference between the variances in the population. This test has been used to test the statistical significance of homogeneity of variance of NNM before and after change in the entry load structure i.e. $\sigma^2_{(NNM\text{-Before})} = \sigma^2_{(NNM\text{-After})}$.

The test statistic, W , is defined as follows:

$$W = \frac{(N - k) \sum_{i=1}^k N_i (Z_{i.} - Z_{..})^2}{(k - 1) \sum_{i=1}^k \sum_{j=1}^{N_i} (Z_{ij} - Z_{i.})^2} \dots\dots\dots (3)$$

$$Z_{ij} = \frac{|Y_{ij} - \bar{Y}_i|}{|Y_{ij} - \tilde{Y}_i|} \dots\dots\dots (4) \quad \begin{matrix} \bar{Y}_i - \text{Mean NNM of } i^{\text{th}} \text{ group} \\ \tilde{Y}_i - \text{Median NNM of } i^{\text{th}} \text{ group} \end{matrix}$$

$$Z_{..} = \frac{1}{N} \sum_{i=1}^k \sum_{j=1}^{N_i} Z_{ij} \dots\dots\dots (5) \quad \text{Where, } Z_{ij} - \text{Mean of All NNM}$$

$$Z_{i.} = \frac{1}{N_i} \sum_{j=1}^{N_i} Z_{ij} \dots\dots\dots (6) \quad \text{Where, } Z_{ij} - \text{Mean NNM of } i^{\text{th}} \text{ group}$$

Where,

- W – Test Statistic
- k - Number of different groups to which the samples belong
- N - Total number of sample NNM(40 months)
- N_i - Number of sample NNM in the i^{th} group (Before & After changes in entry load structure-20 months respectively)
- Y_{ij} is the value of the j^{th} sample from the i^{th} group

ONE-WAY ANOVA FOR HOMOGENEITY OF AVERAGE NET NEW MONEY

The One-Way ANOVA procedure produces a one-way analysis of variance for a quantitative dependent variable by a single factor (independent) variable. Analysis of variance is used to test the hypothesis that several means are equal. This technique is an extension of the two-sample 't' test. One way ANOVA has been used to test the null hypothesis that the average of Net New Money before and after changes in entry load structure are same against the alternate hypothesis that the average Net New Money before and after changes in entry load structure are not equal. The test statistic can be computed as follows.

Sources of Variance	df	Sum of Squares	Mean sum of square	F-Ratio
Variance between before and after changes in entry load structure	C-1	SSC	$M_{SSC}=SSC/C-1$	$F_c = M_{SSC} / M_{SSE}$
Variance within the split period	N-C	SSE	$M_{SSE}=SSE/N-C$	

ANALYSIS AND FINDINGS

PANEL A - DESCRIPTIVE STATISTICS

S. No.	Parameter	Value
1	Average Net New Money (Before)	Rs. 10723.1 Crores
2	Average Net New Money (After)	Rs. - 9520.35 Crores
3	Standard deviation of NNM (Before)	Rs. 62576.4 Crores
4	Standard deviation of NNM (After)	Rs. 99802.99 Crores
5	Shapiro Wilk Normality	0.978(Sig:0.600)

*Significant at 5% Level

Panel A enumerates the measures of average Net New Money, dispersion of Net New Money and departure of symmetrical distribution. It is evident from the analysis that Net New Money ranges between Rs. -162165 Crores and Rs. 185956 Crores during the study period and indeed average Net New Money after change in entry load structure exhibited a declining trend. The standard deviation of Net New Money after change in entry load is high compared prior to change in entry load structure and it indicates that the removal of entry load on mutual fund schemes impinged overall redemptions and sales made by the mutual fund houses. On account of high level of variation in average Net New Money as well as standard deviation of Net New Money, in order to understand the normality of Net New Money, the researcher has hypothesised that Net New Money follows symmetrical distribution, which has zero skewness against the alternate hypothesis that it does not follow normal distribution at 5% level of significance. Shapiro Wilk test for normality proved that the null hypothesis cannot be (Sig: 0.6 > 0.05) rejected at 0.05 level of significance i.e. Net New Money during the study period is normally distributed and no significant evidence found on account of changes in entry load structure.

PANEL B – DURBIN WATSON TEST FOR AUTO CORRELATION FUNCTION FOR RESIDUAL NET NEW MONEY

FIGURE 1: RESIDUAL NNM VS LAGGED RESIDUAL NNM

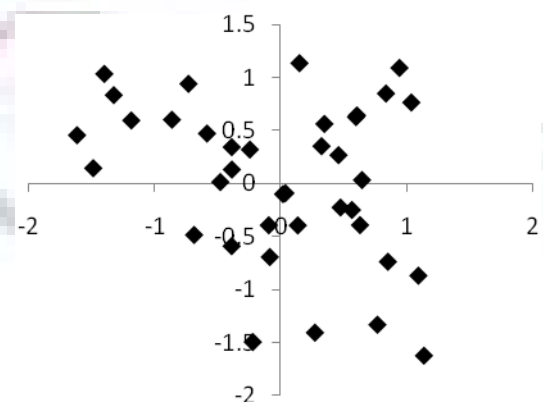
ACF	R-Squared	DW
-0.417 (First lag)	0.174	2.513

* 1% Level, **5% level

For 5%: 4- d_U : 2.446, 4- d_L : 2.558 (k=1)

For 1%: 4- d_U : 2.656, 4- d_L : 2.754 (k=1)

K – Single regressor excluding intercept



Panel B exhibits the serial correlation of residual Net new Money and its statistical significance at 0.01 & 0.05 level. The serial correlation coefficient facilitates to understand whether prior Net New money contains any valid information to explain the current Net New Money. The analysis revealed low degree of negative serial correlation exists to the extent of 0.417 and 17.4% variation in the current Net New Money can be explainable by the prior Net New Money, hence, to the extent of 82.6%, variation in current Net New Money can be explained by the fund related and macro economic variables pertaining to all mutual fund schemes. In order to understand statistical significance of the low degree of negative serial correlation, Durbin Watson test is used to test the hypothesis that there is no evidence for serial correlation against there is a negative serial correlation exists at 0.01 & 0.05 level of significance. Since, the serial correlation coefficient is -0.417 and DW statistic exceeding 2, the alternate hypothesis has been set as there is significant negative serial correlation.

Residual Net New Money has been obtained by finding the difference between actual Net New money and estimated Net New Money of the respective month by using single predictor (first lag) variable. Figure 1 emphasis the scatter plot of Residual Net New Money with lagged Net New Money. The second quadrant and fourth quadrant of the scatter plot consists most of the coordinates, proves that there is a negative serial correlation exists among residual Net New Money and lagged Net New Money. Durbin Watson test is used to test the statistical significance of serial correlation. Since, the research considers only the first order lag structure of residual Net New Money, for single regressor (k=1), the Upper & Lower critical values at 0.01 and 0.05 level are d_U : 1.344, d_L : 1.246 & d_U : 1.554, d_L : 1.442 respectively and the resulting critical values for testing the negative serial correlation are $4 - d_U$: 2.656, $4 - d_L$: 2.754 & $4 - d_U$: 2.446, $4 - d_L$: 2.558 respectively. If the calculated DW statistic is lesser ($DW < 4 - d_U$) than upper critical value then no serial correlation exists among the residual Net New Money and lagged Net New Money, If the calculated DW statistic is greater ($DW > 4 - d_L$) than lower critical value then statistically significant negative serial correlation exists among the residual Net New Money and lagged Net New Money, and If the calculated DW statistic is between ($4 - d_U < DW < 4 - d_L$) upper & lower critical value then decision is inconclusive. The research reveals that the calculated DW test statistic value lies between the upper and lower critical values ($4 - d_U < DW < 4 - d_L$: $2.446 < 2.513 < 2.558$) at 5% level of significance, hence, we are unable to decide statistically significant negative serial correlation between residual Net New Money and lagged residual Net New Money and at 1% level of significance, the calculated DW test statistic value is less than the upper critical value ($DW < 4 - d_U$: $2.513 < 2.656$), hence, we conclude that there is no serial correlation between residual Net New Money and lagged Net New Money. This test results accentuates that prior Net New Money do not contain any valid information to explain the current month Net New Money i.e. though there is considerable amount of variation is observed in Net New Money after changes in entry load structure, we are unable to account statistical significance for changes in entry load structure on mutual fund schemes.

PANEL C – ANOVA (TEST OF EQUALITY OF AVERAGE NNM BEFORE AND AFTER REMOVAL OF ENTRY LOAD)

Source of Variance	Sum of Squares	df	Mean Square	F	Sig.
Variance between before and after changes in entry load structure	4.098E9	1	4.098E9	0.591	0.447
Variance within the split period	2.637E11	38	6.938E9		
Total	2.678E11	39			

*Significant @ 5% Level

Universally, when the benefit (removal of entry load) is extended to the investors in terms of not paying the entry load, it is obvious that they would like to exploit the opportunity given by the market regulator SEBI and presumably increased investments will lead to higher purchases (sale of mutual fund units by the fund houses) of mutual fund units. In order to test the statistical significance of average Net New Money before and after the changes in entry load is same, we have used ANOVA at 0.05 level of significance. It is evident from the analysis that the significant value is greater than the probability ($0.447 > 0.05$); hence, we are unable to reject ($\mu_{\text{Before}} = \mu_{\text{After}}$) the null hypothesis at 5% level of significance. It statistically signifies that despite the change in entry load structure the average Net New Money (before) and Net New Money (after) remains same i.e. removal of entry load did not impact the net inflow into all mutual fund schemes.

PANEL D – LEVENE STATISTIC (TEST OF HOMOGENEITY OF VARIANCES OF NNM BEFORE AND AFTER REMOVAL OF ENTRY LOAD)

Levene’s statistic is used test the equality of variances of Net New Money before and after changes in entry load structure at 0.05 level of significance.

Levene Statistic	df ₁	df ₂	Sig.
5.406	1	38	0.026*

*Significant at 5% Level

It is prudent from Panel D that the significant value is less than the probability ($0.026 < 0.05$); hence we reject the null hypothesis at 5% level of significance and conclude that the changes in entry load is statistically significant and variance of Net New Money before and after removal of entry load is not equal ($\sigma^2_{\text{Before}} \neq \sigma^2_{\text{After}}$). Though the variance before and after changes in entry load structure is significantly different, we cannot account the changes in entry load structure is alone cause for difference in variance but we can assess that changes in entry load structure on all mutual fund schemes is one of the prime causal variable for difference in the variance of Net New Money before and after changes in the entry load structure.

CONCLUSION

The prime objectives of removing the entry load on all mutual fund schemes are to,

- a) Encourage retail investors to participate in the capital market leads to surge in capital inflow
- b) Investors have the freedom to determine and negotiate the commission payable to the distributors according to services rendered
- c) Asset Management Companies can introduce more schemes in order to enhance their asset base (Nine fresh NFO came with in less than 30 days from 18th June’09 to 15th July’09 and more)

but eventually there was no impact on Net New Money. This study proposed to analyse statistically significant impact on Net New Money during December 2007 to March 2011. Intuitively, if incentive (Removal of entry load) is offered, there will be variation in the underlying variable (Net New Money) and apparently accountability can be established by the explanatory variable and also either positive or negative skewness of Net New Money can be witnessed but Shapiro Wilk test for Normality of Net New Money at 0.05 level of significance emphasized that Net New Money is normally distributed (Skewness of Net New Money = 0) throughout the study period. Durbin Watson test accentuated that there is no statistically significant serial correlation between residual Net New Money & lagged residual Net New Money at 0.01 level of significance and the decision for statistically significant serial correlation were inconclusive at 0.05 level of significance, hence, prior Net New Money do not contain any valid information, which would explain current Net New Money. ANOVA test for homogeneity of average Net New Money enumerated that average Net New Money before and after removal of entry load were equal at 0.05 level of significance. Levene’s test for homogeneity of variance of Net New Money exhibited that variance of Net New Money before and after removal of entry load was statistically significant at 0.05 level. Thus, removal of entry load on all mutual fund schemes did not influence the Net New Money. Indeed, not only entry load structure, there are other variables such as exit load, performance of the fund, prevailing interest rate, inflation rate, economic growth level, and demand-supply equations of securities traded in the capital market may influence Net New Money.

Further research can be mandated firstly on overall profitability of mutual funds because market regulator SEBI emphasized that even marketing and distribution charges incurred by Asset Management Companies cannot be recovered from the investors lead reduction in the overall profitability. Secondly, service tax collections (Bajaj and Venkitesh, 2009) by the Government through mutual funds because earlier the mutual fund directly deducts the tax at source on the commission payable to the distributors and paid the service tax directly to Government and now on account of removal entry load the commission would not be paid by the mutual fund and apparently commission comes from the investors, hence service tax should have to be paid by the distributor directly to the Government, leads to complications in determining the amount of service tax even perhaps lead to tax evasion (Bajaj, 2009). Thirdly, marketability risk pertaining to mutual fund products because most of the distributors are perhaps not interested to float mutual fund schemes aggressively as they were earlier on account of removal of entry load.

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A COMPARATIVE ANALYSIS OF MARKET RETURNS AND FUND FLOWS WITH REFERENCE TO MUTUAL FUNDS

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ABSTRACT

In the present study, we investigated the performance of public-sector and private-sector mutual funds for the period of 2005 to 2007. It was mainly undertaken to analyze the returns fetched by two categories of MFs namely Private sector sponsored and the Public sector sponsored funds by using average returns of individual fund and their index value on monthly basis. Selected funds of LIC (Public sector) and Reliance (Private sector) were chosen for the purpose of analysis. Statistical techniques like Mean, Standard Deviation and Coefficient of Variation were applied to study the consistency in returns subject to market risks of each fund. Correlation Coefficient was used to find the degree of relationship between market returns and fund flows. The study revealed that performance of all the funds seemed to be volatile during the study period, as such it was quite difficult to earmark one particular fund that out performed consistently well during all the years of study namely 2005, 2006 and 2007.

KEYWORDS

Market returns, Funds, Mutual Funds, LIC Funds.

INTRODUCTION

Mutual Fund is a trust that pools the savings of numerous investors to invest in various financial instruments like stocks, bonds, debentures, etc through which it facilitates the investors in achieving their financial goals. Investors need not worry about the return as Mutual funds are managed by professionally well experienced and trained Managers. Investors can diligently monitor the performance of the fund's NAV and if necessary can liquidate their units. MF investments are well-diversified and so the investors generally do not run the risk of keeping all the eggs in one basket. The most popular investment avenue among investing community, especially small and medium category investors, The Mutual Fund was instigated in India with the setting up Unit Trust of India in 1964. The main objective for its formation was to attract the small investors and it was made possible through the collective efforts of the Government of India and RBI. Its AUM enhanced many fold and it enjoyed complete monopoly till 1987. After 1987 public sector banks like SBI and many insurance companies started setting their Mutual Funds and this accelerated the growth of Mutual Fund Industry. SEBI which regulates the functioning of MF's modified and revised its regulations in the year 1993 which paved the way for private players to enter the market. Though private MF entities found it difficult to attract new investors in their early stages, trends in the Primary market and Secondary market during 1994 seemed to be in their favor. Private sector MF's started capturing a sizeable market share by their innovative products. Introduction of open ended funds and novel announcements in budget 1999 steered a healthy growth trend in the MF industry. By 2003, private sector mutual funds had extracted a lion's share of the mutual fund assets from the UTI and the PSU bank-sponsored funds. Stock market boom during the last decade facilitated the growth of MF industry to leaps and bounds which can be well understood from the table following table.

TABLE 1: GROSS FUND MOBILISATION (RS. CRORES)

FROM	TO	UTI	PUBLIC SECTOR	PRIVATE SECTOR	TOTAL
01 April 98	31 Mar 99	11,679	1,732	7,966	21,377
01 April 99	31 Mar 00	13,536	4,039	42,173	59,748
01 April 00	31 Mar 01	12,413	6,192	74,352	92,957
01 April 01	31 Mar 02	4,643	13,613	1,46,267	1,64,523
01 April 02	31 Mar 03	5,505	22,923	2,20,551	2,48,979
01 April 03	31 Mar 04	-	68,558	5,21,632	5,90,190
01 April 04	31 Mar 05	-	1,03,246	7,36,416	8,39,662
01 April 05	31 Mar 06	-	1,83,446	9,14,712	10,98,158
01 April 06	31 Mar 07	-	3,38,619	15,99,873	19,38,492
01 April 07	31 Mar 08	-	6,83,623	37,80,752	44,64,375

Source: www.sebi.gov.in

The table(1) spells out that 85% of the total gross fund mobilization was in private sector (37, 80,752 Crores) and only 15% of funds were mobilized by public sector (6, 83,623 Crores). Though the private players entered into the industry only in 1996, its growth is really alarming when compared with public players.

This may be due to the variety of schemes, attractive and effective advertisements, innovative marketing strategies, customer service etc. Mutual Fund investments have emerged as the highly favored invest vehicle amongst majority of the investors as it confers the convenience of diversification even for a small investor. It enables an investor to manage his investment professionally by utilizing the services of a full-time fund Manager while at the same time he is able to monitor the NAVs of the schemes. A MF investor also enjoys economies of scale as the transaction costs are kept low. Beyond all these, an investor is able to liquidate his investment into cash whenever he wants.

REVIEW OF LITERATURE

In the recent scenario, the investors, regulators, academicians and press has been paying extensive attention on stock market volatility and moreover, the option traders also been following the similar path since the option value is mainly dependent on the volatility of the underlying assets. Further, it was found that significant academic attention has been given on the impact of price over mutual fund trading. Much of literature available focuses only on Mutual fund market growth, future trends; etc but very limited literature is available on the Comparative analysis of Market Returns with its Fund Flows. Only individualistic country like USA, Europe have concentrated on the research in Mutual fund flows with its relevant market returns, whereas analysts, academic researchers in collectivistic countries like India have paid least attention in these areas. Edelen, Roger M. and Warner, Jerold B., (2008) in their working paper series with the help of semi-weekly and daily flow data basis tried to study the relationship between markets returns and unexpected aggregate flow specifically with reference to US equity funds. Panwar, Sharad and Madhumathi, R.,(2006) in their working papers series examined the characteristics and performance evaluation of selected mutual funds for the period 2002 – 2005. In their study, public-sector sponsored and private-sector sponsored mutual funds of varied net assets were used as samples to investigate the differences in characteristics of assets held, portfolio diversification and variable effects of diversification on investment performance. The authors found that public-sector sponsored funds do not vary considerably from private-sector sponsored funds in terms of mean returns(%), nevertheless, there is a considerable difference between public-sector sponsored mutual funds and private-sector sponsored mutual funds in terms of average standard deviation, average variance and average coefficient of variation (COV). Phalippou, Ludovic and Massa, Massimo, (2004), authors examined how actively managed equity mutual funds choose the liquidity level of their equity portfolio and the effects of this selection on performance. Warner(2001) report predicted the unexpected aggregate mutual fund flows was positively correlated with concurrent market return at daily frequency and also they found that flows from returns with in a day and one day return lagged response of aggregate flow of market returns. Remolona, Eli M., Kleiman, Paul and Gruenstein, Debbie (July 1997) authors analyzed the short-term effect of Market returns and mutual fund flows by using instrumental variables on flows. Many prior studies mainly focused on the price effect of money inflow into a mutual fund on individual mutual funds. (Chan and Lakonishok, 1993, 1995, 1997; Keim and Madhavan, 1997; Jones and Lipson, 1999), some other literatures were about the relation between the aggregate cash flow into all mutual funds and market-wide returns. Warther (1995, 1998) concludes his study by stating that there prevails a very strong contemporaneous relationship between unexpected flow and stock returns on a monthly frequency. But he also argues that this relationship is not sufficient to infer causality between flow and returns because return could drive flow or flow could drive return, or a third factor such as new information could drive both. There is a hypothetical assumption that private-sector outperforms public-sector due to several factors such as responsibility, commitment and so on. Therefore, this study is an attempt on testing this hypothesis on the mutual fund industry. Although many studies document the investment performance of mutual funds irrespective of whether they are public-sector sponsored or private-sector sponsored, the present study was undertaken mainly to compare the performance of public sector and private sector mutual fund with regard to their fund flows and the market returns with the following objectives:

- To compare the performance of public sector sponsored and private sector sponsored mutual funds for a period of three years i.e., 2005 to 2007.
- To compare the market returns with that of fund flows and
- To evaluate the performance of the funds based on its market risk.

RESEARCH METHODOLOGY

The study was mainly undertaken to examine the returns fetched by two categories of MFs namely Private sector sponsored and the Public sector sponsored funds by using average returns of individual fund and their index value on monthly basis. Selected funds of LIC (Public sector) and Reliance (Private sector) were chosen for the purpose of analysis. Reliance Capital Ltd. is one of the India's leading and amongst the fastest growing private sector financial services companies, and ranks among the leading private sector financial services and banking companies, in terms of net worth. This study is purely based on the secondary data collected from www.nseindia.com, www.amfiindia.com, www.mutualfundsindia.com, www.sebi.gov.in and www.moneycontrol.com. The average monthly returns and the index value for 2005 to 2007 of individual funds was collected from www.nseindia.com and the Karl Pearson's correlation coefficient (r) was calculated for individual fund to find out the extent of relationship between the market return and the fund flows. Other statistical tools like coefficient of variation (CV), standard deviation (σ) and mean (μ) were applied to find the performance of funds flows based on its market risk.

The limitations of the study is that only selected open ended schemes of LIC and Reliance Mutual Fund for the period of 2005-07 had been considered for study. Hence, the findings of the study may not be generalized upon the open ended schemes of other mutual funds of different periods. The performance of a scheme can be evaluated on various parameters, but the most important is the total returns from the scheme, hence our analysis examines only average monthly flow-return correlations from 2005 to 2007 and not based the daily returns, historical performance of the schemes etc.



ANALYSIS

TABLE 2: AVERAGE MONTHLY RETURNS OF LIC AND RELIANCE MUTUAL FUNDS IN 2005

SN.O	NAME OF THE FUND		JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC	MEAN	SD	CV
Public Sector Mutual Funds																	
1	LIC Equity Fund	Return	1.21	2.853	4.515	0.138	8.642	8.657	7.471	14.59	2.857	11.459	4.18	13.379	6.66	4.78	71.78
		Index	5.299	0.768	7.617	5.105	7.3	11.722	4.878	13.448	2.991	9.505	0.849	13.398	6.91	4.42	64.04
2	LIC Bond Fund	Return	0.995	0.737	0.723	1.742	1.382	0.358	0.43	1.247	0.774	0.238	0.218	1.183	0.84	0.49	58.10
		Index	1.368	0.361	0.198	0.856	1.304	0.744	0.274	1.394	1.775	0.134	0.405	0.391	0.77	0.56	73.25
3	LIC Growth Fund	Return	4.071	1.107	4.509	3.579	13.099	7.974	12.389	15.199	4.611	11.827	0.715	11.447	7.54	5.05	66.92
		Index	0.864	0.022	0.284	0.674	0.688	0.555	0.219	0.574	0.723	0.288	0.433	0.143	0.46	0.26	57.83
4	LIC Balanced Fund	Return	1.078	0.817	2.228	0.67	4.623	3.993	2.682	3.993	1.885	6.038	0.051	9.683	3.15	2.74	87.22
		Index	3.609	0.68	7.917	1.274	14.863	10.303	4.983	16.419	1.489	6.653	3.428	16.617	7.35	5.91	80.44
5	LIC Fixed Maturity	Return	0.261	0.422	0.528	0.731	0.392	0.309	0.416	0.506	0.368	0.238	0.244	0.234	0.39	0.15	38.35
		Index	1.498	0.588	0.594	1.082	2.815	1.164	0.954	2.044	3.066	0.728	2.055	0.973	1.46	0.85	57.84
Private sector mutual funds																	
6	Reliance Retail Plan Fund	Return	1.294	0.441	0.982	1.682	1.378	0.437	0.84	1.559	1.097	0.342	0.471	1.61	1.01	0.50	49.50
		Index	5.299	0.768	7.617	5.105	7.3	11.722	4.878	13.448	2.991	9.505	0.849	13.398	6.91	4.42	64.04
7	Reliance Equity Fund	Return	3.934	0.333	10.265	4.936	12.132	14.352	2.838	17.318	0.657	9.189	10.57	10.445	8.08	5.47	67.63
		Index	3.645	0.637	7.784	3.917	9.293	11.558	5.869	13.311	3.696	9.292	1.622	14.45	7.09	4.57	64.43
8	Reliance Growth Fund	Return	3.941	4.936	30	1.472	13.281	8.236	4.889	17.305	6.038	0.736	15.2	7.205	9.44	8.32	88.14
		Index	3.645	0.637	7.784	3.917	9.293	11.558	5.869	13.311	3.696	9.292	1.622	14.45	7.09	4.57	64.43
9	Reliance Regular Savings Fund	Return	0.939	0.312	0.464	1.736	1.46	0.38	0.754	1.584	0.965	0.295	0.512	1.382	0.90	0.53	58.72
		Index	1.368	0.361	0.198	0.856	1.304	0.744	0.274	1.394	1.775	0.134	0.405	0.391	0.77	0.56	73.25
10	Reliance Equity Opportunities Fund	Return	2.384	0.142	6.553	1.064	14.941	10.831	5.011	11.966	1.692	8.303	7.635	17.408	7.33	5.62	76.70
		Index	0.465	0.459	0.288	0.646	0.817	0.728	0.328	0.699	1.72	0.474	0.19	0.255	0.59	0.41	69.44

Source: www.nseindia.com

Table No.(2) demonstrates the average monthly returns of selected mutual funds of public and private sector and their market returns in the year 2005. The mean returns was calculated, which shows that Reliance Growth Fund had the highest mean returns of 9.44% with that of their market return of 7.09%, which was followed by Reliance equity fund with 8.08% returns for which the market returns was only 7.09% and Reliance equity Opportunity fund with 7.33% market return and market return by only 0.59%. Further LIC growth fund showed a mean return of 7.54% with market return of only 0.45%. The above mentioned funds were the main schemes in which the percentage mean returns of individual fund were higher than that of the market returns. The rest of the funds showed positive returns, but the returns of most of the fund was found lesser than their market returns. The standard deviation and coefficient of variation was calculated to know the volatility of returns of individual funds as well as market returns. The standard deviation was found to be least for LIC fixed maturity fund with 0.15 for which the deviation in the market returns was 0.85 and it was followed by LIC Bond fund with the standard deviation of 0.49 for which volatility in the market return was found to be 0.56. Further, the volatility in the returns of Reliance retail plan was found to be 0.50 but the deviations in the market return was 4.42. The volatility in the returns of rest of the schemes though showed a low figure, but it was found to greater than these above mentioned schemes. Therefore, the consistency of the above mentioned schemes is higher when compared with other schemes of mutual funds. Therefore, the investors of these funds would have benefited from constant returns in most of the time in 2005.

The percentage variation in the returns of LIC Fixed maturity fund was found to be the least with 38.35% when compared to other funds and it was followed by Reliance retail plan with 49.50% variations in their returns. The above table further explains that the coefficient of variation for Reliance growth fund was highest with 88.14%, which was followed by LIC balanced fund with 87.22%. This indicates that the investors have to take minimum risk in investing in the funds which have least coefficient of variation and maximum risk in investing in the funds having high coefficient of variations, since there is high volatility in their returns.

TABLE 3 - AVERAGE MONTHLY RETURNS OF LIC AND RELIANCE MUTUAL FUNDS IN 2006

S.NO	NAME OF THE FUND	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC	MEAN	SD	CV	
Public Sector Mutual Funds																	
1	LIC Equity Fund	Return	4.011	6.131	3.59	1.59	14.87	0.154	5.387	3.024	5	0.455	5.416	8.82	4.87	4.00	82.12
		Index	5.36	1.769	4.361	1.294	16.02	0.153	6.187	0.445	6.73	0.662	8.958	6.04	4.83	4.57	94.66
2	LIC Bond Fund	Return	0.211	0.075	1.306	0.255	0.598	1.143	0.191	0.131	0.19	0.376	0.398	0.21	0.42	0.40	94.51
		Index	1.165	0.003	0.507	0.164	0.068	0.701	1.423	0.697	0.36	1.138	0.135	0.23	0.55	0.48	87.30
3	LIC Growth Fund	Return	1.386	3.382	0.08	3.143	15.49	0.447	3.957	1.09	5	1.394	7.651	7.68	4.22	4.37	103.54
		Index	0.524	0.343	0.018	0.314	0.094	0.12	0.279	0.06	0.39	0.807	0.06	0.05	0.26	0.24	93.29
4	LIC Balanced Fund	Return	1.27	2.113	1.598	0.308	7.579	0.815	2.934	1.08	1.85	0.596	3.361	5.02	2.38	2.11	88.84
		Index	6.6	2.796	1.799	1.096	17.11	0.032	7.027	1.695	6.88	0.25	9.44	8.81	5.29	5.03	95.04
5	LIC Fixed Maturity	Return	0.242	0.278	0.37	0.183	0.19	1.94	1.641	0.191	0.19	0.194	0.197	0.19	0.48	0.62	127.27
		Index	5.138	1.451	2.699	0.044	0.112	1.703	3.652	1.515	1.52	1.812	0.069	0.24	1.66	1.56	93.95
Private sector mutual funds																	
6	Reliance Retail Plan Fund	Return	0.298	0.044	1.506	0.512	0.7	1.353	0.313	0.573	0.47	0.282	0.367	0.69	0.59	0.43	73.14
		Index	5.36	1.769	4.361	1.294	16.02	0.153	6.187	0.445	6.73	0.662	8.958	6.04	4.83	4.57	94.66
7	Reliance Equity Fund	Return	10.18	6.648	7.082	3.153	5.487	6.29	9.357	14.18	6.38	0.216	6.938	16	7.66	4.35	56.73
		Index	4.986	2.078	3.636	0.386	16.58	0.081	5.973	0.128	6.96	0.39	9.221	7.04	4.79	4.87	101.77
8	Reliance Growth Fund	Return	17.54	2.941	6.255	1.408	19.51	1.762	8.082	2.075	3.95	2	3.114	3.58	6.02	6.17	102.47
		Index	4.986	2.078	3.636	0.386	16.58	0.081	5.973	0.128	6.96	0.39	9.221	7.04	4.79	4.87	101.77
9	Reliance Regular Savings Fund	Return	0.231	0.027	1.258	0.133	0.729	1.124	0.344	0.079	0.23	0.162	0.05	1.03	0.45	0.46	101.31
		Index	1.165	0.003	0.507	0.164	0.068	0.701	1.423	0.697	0.36	1.138	0.135	0.23	0.55	0.48	87.30
10	Reliance Equity Opportunities Fund	Return	8.144	0.357	0.554	0.334	15.28	4.341	0.749	1.706	5.72	0.341	12.349	7.31	4.76	5.12	107.54
		Index	1.03	0.056	0.098	0.299	0.302	0.266	0.21	0.352	0.24	0.621	0.209	0.36	0.34	0.26	77.35

Source: www.nseindia.com

Table No (3) depicts the average monthly returns of selected mutual funds of private and public sector and their monthly market returns in the year 2006. The average returns of individual fund as well as for the market was calculated which clears out that Reliance equity fund had the highest mean returns of 7.66% with that of market return of 4.79%. It was followed by Reliance growth fund with 6.02% return, LIC equity fund with 4.87% and Reliance equity opportunity fund with 4.76% returns. All these funds showed better returns when compared to their market returns. The remaining funds though it showed a positive trend, but their returns were much lower than their market returns.

The Standard deviation was found to be minimum for LIC Bond fund with 0.40 for the fluctuations in the market return was 0.48. It was followed by Reliance retail plan fund with 0.43 and for which the volatility in the market returns was 4.57. The Reliance regular saving fund had the standard deviation of 0.46 with that of market return volatility of 0.48. Therefore, these funds were more consistent with respect to their returns when compared with other funds. Only two funds namely LIC growth fund ($\sigma = 4.37$) and Reliance equity opportunity fund ($\sigma = 5.12$) showed a comparatively higher deviations in their returns with that of their market returns.

The percentage variations in the return of LIC fixed maturity fund was highest (127.27%), which was followed by Reliance equity opportunity fund with 107.54%, LIC growth fund with 103.54% and Reliance regular savings fund with 101.31% variations in their returns. Hence, it was clear that these funds were found to highly riskier for investments when compared to other funds since there was high volatility in their returns.

TABLE 4: AVERAGE MONTHLY RETURNS OF LIC AND RELIANCE MUTUAL FUNDS IN 2007

S.NO	NAME OF THE FUND	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC	MEAN	SD	CV	
Public Sector Mutual Funds																	
1	LIC Equity Fund	Return	2.219	5.212	0.431	2.278	7.738	5.173	3.419	9.789	3.393	9.727	10.068	3.93	5.28	3.30	62.49
		Index	2.714	2.107	2.339	7.987	8.911	6.374	4.539	2.873	8.133	9.852	11.124	5.098	6.00	3.17	52.74
2	LIC Bond Fund	Return	2.262	1.53	1.577	3.512	0.055	4.548	0.397	1.698	0.223	0.338	5.121	0.211	1.79	1.76	98.28
		Index	0.232	0.375	0.363	0.372	0.361	0.418	0.728	0.96	0.279	0.444	0.765	0.45	0.48	0.22	45.90
3	LIC Growth Fund	Return	2.716	1.761	3.633	5.468	3.98	0.419	9.916	5.542	2.834	9.906	8.627	5.672	5.04	3.11	61.78
		Index	0.244	0.316	0.298	0.441	0.425	0.468	0.421	0.464	0.313	0.444	0.478	0.438	0.40	0.08	20.17
4	LIC Balanced Fund	Return	0.511	3.189	4.592	2.978	2.625	0.759	2.26	2.196	3.571	6.358	3.148	3.051	2.94	1.56	53.06
		Index	3.624	2.952	2.155	6.462	8.235	3.685	6.016	4.253	6.083	10.074	10.625	4.991	5.76	2.72	47.28
5	LIC Fixed Maturity	Return	0.194	1.545	0.321	0.191	0.19	1.879	1.645	0.192	0.19	0.194	0.194	0.379	0.59	0.67	112.7
		Index	0.679	0.709	0.907	0.439	0.355	0.035	1.879	3.481	3.376	0.801	2.14	0.49	1.27	1.17	92.03
Private sector mutual funds																	
6	Reliance Retail Plan Fund	Return	0.556	0.787	0.502	0.271	0.86	0.626	0.488	0.246	0.302	0.231	0.354	0.189	0.45	0.22	49.53
		Index	2.714	2.107	2.339	7.987	8.911	6.374	4.539	2.873	8.133	9.852	11.124	5.098	6.00	3.17	52.74
7	Reliance Equity Fund	Return	5.172	13.901	2.683	4.569	10.268	3.073	12	16.955	0.039	12.187	14.493	7.227	8.55	5.47	63.94
		Index	3.187	2.29	2.355	7.89	8.805	5.426	5.262	2.756	7.624	10.198	12.835	4.974	6.13	3.38	55.10
8	Reliance Growth Fund	Return	7.759	1.382	4.541	4.631	3.603	0.749	0.472	4.757	7.143	9.136	12.156	2.893	4.94	3.55	72.01
		Index	3.187	2.29	2.355	7.89	8.805	5.426	5.262	2.756	7.624	10.198	12.835	4.974	6.13	3.38	55.10
9	Reliance Regular Savings Fund	Return	0.386	0.55	0.288	0.189	0.916	0.44	0.635	0.292	0.317	0.389	0.384	0.308	0.42	0.20	46.20
		Index	0.232	0.375	0.363	0.372	0.361	0.418	0.728	0.96	0.279	0.444	0.765	0.45	0.48	0.22	45.90
10	Reliance Equity Opportunities Fund	Return	2.803	5.689	1.681	2.105	8.621	1.385	6.337	4.193	5.209	0.68	0.401	0.683	3.32	2.66	80.19
		Index	0.34	0.408	0.442	0.44	0.297	0.297	0.748	0.918	0.283	0.575	0.367	0.375	0.46	0.20	42.92

Source: www.nseindia.com

The table No 4 illustrates the percentage returns of selected mutual funds of LIC and Reliance with that their market returns in 2007. The mean returns was calculated, which shows that reliance equity fund had the highest mean returns of 8.55% with that of their market return of 6.13%. It was followed by LIC growth fund with 5.04% returns for which the market returns was only 0.40% and Reliance equity Opportunity Fund which had a mean return of 3.32% when compared to the market return by only 0.46%. Further LIC Bond fund showed a mean return of 1.79% with market return of only 0.48%. The above mentioned funds were the only schemes in which the percentage mean returns of individual mutual fund were greater than the market returns. The rest of the funds showed positive returns, but it was found lesser than their market returns.

The standard deviation and coefficient of variation was calculated to know the volatility of returns. The standard deviation was found to be least for Reliance regular savings fund with 0.20 for which the deviation in the market returns was 0.22 and it was followed by Reliance retail plan fund with the standard deviation of 0.22 for which volatility in the market return was found to be 3.17. The volatility in the returns of rest of the schemes though showed a low figure, but it was found to be greater than the volatility in market returns. Therefore, the consistency of the above mentioned schemes of private sector mutual funds is higher when compared with other schemes of public sector mutual funds. Therefore, the investors of these funds would have benefited from constant returns in 2007. The percentage variation in the returns of LIC Fixed maturity fund was found to be highest (112.71%) when compared to other funds. It was followed by LIC Bond fund with coefficient of variation of 98.28% and then Reliance equity opportunity fund with 80.19%. This clearly indicates that the investors have to take high risk in investing in these schemes, since there is high volatility in their returns.

CORRELATION BETWEEN RETURNS AND FLOWS

Warther (1995) finds a very high correlation ($R^2 = 55\%$) between monthly flow and returns, as they documented that variation in aggregate flow only accounts for 3% of the variation of daily market index returns, thus providing limited evidence on the common public view that mutual fund flow would cause the movement of security prices. Most of the prior studies focus on the mutual fund flow with the movement of security prices, but here we study the correlation between the fund flows with their market returns for the selected public sector sponsored and private sector sponsored mutual funds. The funds were ranked based on the extent of correlation found between the returns of each scheme with index value. It was clear from the above that LIC equity fund in the year of 2005 topped the ranking and the same fund was ranked second in 2006 as well as in 2007. The LIC balance fund –growth was ranked second in the year 2005, listed top in 2006 and ranked fourth in 2007. In the private sector sponsored mutual funds, Reliance growth fund was ranked seventh in 2005, third in 2006 and listed top in 2007. It was further inferred that from the table that Reliance retail plan fund and Reliance regular saving fund were the only funds which showed a very low negative correlation in 2006 and 2007, which means that the returns of these funds were inversely related to its market return. Therefore, it was found contrary to the study of *Eli M. Remolona and e.tal (1997)*, which stated the flows into funds have generally been highly correlated with market returns. This is because of two-way causation between flows and returns, in which fund investors react to market movements while the market itself moves in response to the investors' behavior.

FINDINGS OF THE STUDY

The present study reflected that the correlation between market returns and fund flow was high for LIC equity and LIC balance fund-growth. Though the mean return of Reliance growth fund, Reliance equity fund and Reliance equity opportunity fund had shown a remarkable return in the year 2005 and 2006, it had been equally risky for the investors, since the volatility in the returns was very high for these funds. In the LIC MF, the return of LIC fixed maturity fund in 2005 and 2006, LIC bond fund in 2007, LIC growth fund in 2006 and LIC balance fund –growth in 2005 had high variations when compared with its market return. There is no significant difference in the performance of private and public sector sponsored MFs, as each fund has been performing well during different years of the study.

CONCLUSION

The growth rate in the mutual fund industry was 100% in the past few years, but the savings rate in India was found to be 23% only. There is huge scope in the future for the expansion of the mutual fund industry. A number of foreign based asset management companies are venturing into the Indian market. SEBI has approved the participation of mutual funds in commodities derivatives. In the year 2004-05, the private sector sponsored MFs had a lion's share 78.53% of the total NAV while public sector sponsored MFs accounted for 21.47% only. Similarly during 2007-08 the private sector MFs has tremendously increased to the extent of 82.28% of the total NAV and public sector MFs 17.72% only. This shows that the private sector MFs are growing at a fast pace when compared to public sector MFs. This may be due to the variety of schemes, attractive and effective advertisements, innovative marketing strategies, customer service etc. But, in the present study there is not much evidence to support the above statements. Hence, it was concluded that the performance of all the funds seemed to be volatile during the study period, as such it was quite difficult to earmark one particular fund that out performed consistently well during all the years of study namely 2005, 2006 and 2007.

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WOMEN EMPOWERMENT AND ENTREPRENEURSHIP THROUGH SHGs - A STUDY OF CHIKKABALLAPUR DISTRICT

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ABSTRACT

Self Help Groups (SHGs) in India represent a unique approach to financial intermediation. The approach combines access to low cost financial services with a process of self management & development for the women. The present study focused on various types of enterprises taken up by members of SHGs. The study has further concentrated on the studying of various parameters for the socio-economic development of women. The study consists of 80% of the entrepreneurs doing their traditional family occupation of weaving silk saris through handlooms. Banks have directly denied giving loans to these people. Now they are depending on micro-finance their business is sustained by getting the required working capital only through SHGs. So, it has concluded that the SHGs are playing active & positive role in women empowerment & development of women entrepreneurship.

KEYWORDS

SHG, Empowerment, Entrepreneurship, NGO.

INTRODUCTION

Development Women Entrepreneurship is an essential part of Human Resource Development. Women entrepreneurship is very low in India, especially in rural areas. This may be due to lack of institutional financial accessibility, lack of knowledge, skills and encouragement.

As a solution to the most of the above stated problems, the scheme of SHGs launched in 1982-83, inaugurated an era for systematically organised women groups for providing them opportunities of self employment on sustained basis in India.

India has a great entrepreneurial potential at present, women involvement in economic activities is marked by a low work participation rate, excessive concentration in the unorganized sector and employment in less skilled jobs. Women in India still perform their traditional roles in their houses & agriculture. They do not engage in any of the economic activities, without assistance from their men-folk due to socio-cultural, traditional practices & conventions.

Development of micro entrepreneurship at gross root level is perceived as a powerful medium to ameliorate several socio-economic problems, such as reduction of poverty, balanced regional development of goods & services. Redistribution of both income & opportunities in the community in general the redistribution of wealth & opportunity lead to the decentralization of economic power with in the community.

EMPOWERMENT

Empowerment is a social action process that promotes participation of people, organization & communities in gaining control over their lives in their community. the concept empowerment had been defined as the "process of challenging existing power relations & of gaining greater control over the sources of power" (Priyanka Basu & Pradeep Srivastava 1994). Empowerment has also been defined as a "range of activities, connective resistance, protest & mobilization that challenge basic power relations" (Sharma, Kumar 1991-92). while empowerment is generally described as a process, which enables individuals or groups to change balance of power in social economic & political relations in society. Education & employment are the key to women empowerment. an education & employment would improve the status of women enhance their price provide economic independence social mobility.e.t.c further gender equality could achieved in course of time.

SELF-HELP-GROUPS (SHGs)

SHGs are of recent origin in rural India, helping more than 17 million women from villages to improve their incomes, educate their children & buy assets. SHGs have also helped women to campaign against oppressive social practices & become a force of development in their villages. Studies have shown that the delivery of micro finance to the poor is productive, effective & less costly, if they are organized into self help groups. SHGs in India represent a unique approach to financial intermediation, which combines access to low cost financial services with a process of self management and development for women, who are SHG members. SHGs are formed & supported usually by NGOs or increasingly by government agencies, linked not only to the banks but also to wider development programmes. SHGs are seen to confer many benefits both economic & social. SHGs can also be community platforms from which women become active in village affairs, stand for local election or take action to address social community issues.

STATEMENT OF THE PROBLEM

Though most of the women in India have the capacity & talent to work. they are not able to get ready made jobs, due to the under & unemployment. In general women were forced not utilizing fully for their own development as well as nation's development. The financial sources, education, skill and capacity are the major barriers to start the enterprises by the women.

This paper attempts to explore women empowerment and entrepreneurship from micro finance through SHGs. The present study is conducted to study the entrepreneurial qualities of women and their socio-economic development which indicates their empowerment. In India, nearly 75% of the population lives in rural areas where the agriculture is major occupation. So, in villages majority of women have to depend on the agricultural activities, which leads to underemployment and unemployment. Further, the remuneration for unskilled labourers is also very less, which may not be sufficient to run and maintain their families. The scope of employment opportunities is also decreasing in agricultural activities. This results into migration of people to nearest cities and towns. But such people are unbankable due to various formalities of banks. Then only the micro finance has come into vogue to help women to do small and tiny business through SHGs.

Women self-help groups are creating high hopes as a mechanism to address the poverty in general and rural poverty in particular. The performance of the SHGs is overwhelming; especially the repayment rate is considerably high. This trend has created a high image and credibility to the women members of SHGs. Keeping this in mind the researcher has made an attempt to conduct a case study to analyze the variables contributing to the success of women entrepreneurs who are the members of active SHGs in Chikkaballapur district & same has been appropriately titled as "**Women Empowerment and Entrepreneurship through SHGs --A Study of Chikkaballapur district.**"

OBJECTIVES OF THE STUDY

The present study was carried out with the primary objective of understanding the socio-economic background of members of SHGs and to identify the entrepreneurship qualities of members of SHGs. However the following specific objectives were set in addition the primary objective.

1. To study the Socio-Economic background of SHG member before and after joining to SHGs.
2. To understand perception of SHG members regarding the uses of becoming SHG members.
3. To study the entrepreneurial qualities of the SHG members.
4. To summarize the findings and to give suitable suggestions for women empowerment and entrepreneurship.

SCOPE OF THE STUDY

The study has been undertaken in the chintamani taluk of chikkaballapur district in Karnataka State. The study involves two clusters of Chintamani taluk. Chintamani taluk is selected purposively because, it comes under dry zone, where agriculture has a limited scope and there is lot of potential for other entrepreneurial activities. 150 women SHG members constituted a sample size.

PROFILE OF RESPONDENTS

Majority of the women selected for study were doing their traditional and conventional business of handloom weaving, where they buy the raw silk from outside and manufacture (weave), the silk sarees. Most of them do not have their own outlets to sell their production. The SHGs selected were of two types viz.,

1. SHGs getting finance through NGOs by SHGs bank linkage programme
2. SHGs financed by the Government agencies

An NGO by name HEART Centre (Human Education And Resource Training) is providing financial assistance to SHG members through SHG bank linkage programme where the NGO is the facilitator.

The other group of SHG members is getting financial assistance through a government agency, the women and child welfare department of Government of Karnataka.

METHODOLOGY

Data was collected using pre tested structured questionnaires, schedules and also through personal interviews. The data was subjected to conventional method of analysis to compute simple statistical measures like percentages and averages.

SAMPLING

Simple random sampling method has been used for data collection. 150 women SHG members have been selected. Of them, 80% constitutes silk saree weavers and 10% constitutes other types of entrepreneurs and the remaining 10% are not engaged themselves in any economic activities and they are utilizing the borrowed money for family affairs.

TABLE 1: TABLE SHOWING SOCIO-ECONOMIC PROFILES OF SHG MEMBERS

Sl. No.		No. of respondents	Percentages
1	Age		
	Below 20	5	3.33
	21- 30	100	66.67
	31- 40	40	26.67
	41- 50	3	2
	51- 60	2	1.33
	Above 60	nil	00
	Total	150	100
2.	Education Level		
	Illiterate	50	33.34
	Primary	65	43.33
	Matriculation	30	20
	Pre-university	5	3.33
	Graduation	0	00
	Total	150	100
3.	Marital status		
	Married	120	80
	Un-married	10	6.67
	Widows	20	13.33
	Total	150	100
4.	Caste		
	OBC	120	80
	Minorities	3	2
	SC/ST	27	18
	Total	150	100
5.	Average Monthly Income (Rs.)		
	0 – 500	15	10
	501 – 1000	30	20
	1001 - 1500	5	3.33
	1501 – 2000	80	53.34
	2001 - 3000	20	13.33
	Total	150	100
6.	Average savings/month		
	Nil	135	90
	0-50	10	6.67
	51-100	3	2
	101 – 150	2	1.33
	Above151	0	0
	Total	150	100

TABLE 2: TABLE SHOWING IMPROVEMENT IN SOCIO-ECONOMIC STATUS AFTER BECOMING SHG MEMBERS

Sl. No.	Economic strength Improvement	No. Of Respondents	Percentage
1	Handling money from Rs. 2000 to Rs. 10,000	60	40
2	Started monthly savings upto Rs. 200	150	100
3	Buying physical assets like, TV, Gas, Mixer grinder, Mobile phones, Vehicles etc.,	105	70
4	Contribution to SHG is double due to more savings	75	50
5	Started individual income generated activities	68	45
6	Repayment of loan within stipulated period	135	90
	Social Strength Improvement		
1	Decision making power in the matters of family affairs	90	60
2	Recognition in the family, relatives and neighbours	114	76
3	Awareness about dangerous deceases like HIV, Swine Flue, Chikoon gunya, Dengue etc.,	98	65
4	Participating in SHG meetings and discussions	135	90
5	Participating in Fairs, SHG melas, organized by Government or semi government organizations	120	80

TABLE 3: TABLE SHOWING ENTREPRENEURSHIP QUALITIES OF SHG MEMBERS

Type of entrepreneurship	No. of Respondents	Percentage
1. Silk saree manufacturing	120	80
2. Trade	8	5.33
3. Service sector	4	2.67
4. Invested in live stock	3	2
5. No occupation	15	10
Total	150	100

INTERPRETATION

90% of the respondents are engaged in entrepreneurial activities, of them 80% are doing their traditional occupation of weaving silk sarees, 5.33% are engaged in trading activities, 2.67% in service sector, 2% are engaged in cattle rearing, & 10% are not engaged in any economic activity. They are utilizing the borrowed money for meeting family expenditures.

TABLE 4: TABLE SHOWING THE SAVINGS AND THRIFT AMONG THE SHG MEMBERS

Savings	No. of Respondents	Percentage
Yes	150	100
No	00	00
Total	150	100

INTERPRETATION

All the respondents are cultivated the habit of savings. Savings is a must for borrowing loans from SHGs. This encourages thrift among poor people which ultimately results into savings.

TABLE 5: TABLE SHOWING REASONS FOR BORROWING FROM SHGs

Reasons for borrowing from SHGs	No. of Respondents	Percentage
Easily Accessible	3	02
Easy Installments	-	-
Less Interest Rate	3	02
Less Formalities	-	-
No Collaterals	-	-
All of the above	144	96
Total	150	100

INTERPRETATION

Majority (96%) of the respondents are telling that they are borrowing from SHGs because the loans are having the characteristics of easy accessibility, easily payable installments, lesser interest rates, less formalities & no need of giving collaterals.

TABLE 6: TABLE SHOWING VARIOUS REASONS FOR DEVELOPMENT OF ENTREPRENEURSHIP

Causes for Entrepreneurship	No. of Respondents	Percentage
Timely Finance	90	60
Lesser rate of interest	90	60
Convenient installments	90	60
Helps in Competency building	6	04
All of the above	30	20

INTERPRETATION

The members have given more than one option in the above mentioned points. About 60% of the members opinion that, SHGs are encouraging for the development of entrepreneurship by providing timely finance, offering the required finance at lesser rate of interest and repayable in easily manageable installments.

Only about 4% feel that SHGs are helping in competency building by giving training in vocational skills & about 20% respondents feel that because of all the above mentioned reasons SHGs are encouraging the development of entrepreneurship.

TABLE 7: TABLE SHOWING SOURCES OF BORROWING BEFORE BECOMING SHG MEMBERS

Various sources for borrowing	No. of respondents	PERCENTAGE
Commercial banks	3	2
Local Money Lenders	120	80
Indigenous Bankers	6	4
Friends & Relatives	21	14
Total	150	100

INTERPRETATION

A very less % (2%) were borrowing from commercial banks & a large % i.e. about 80% from local money lenders, 2% from indigenous bankers & about 14% from friends & relatives.

SUMMARY OF FINDINGS

- Majority of SHGs (66.67%) are in the age group of 31 – 40 years. This is the more matured age. Most of them are free from personal problems like pregnancy, small children etc., so, they will be ready to take risk for the development of their business and also ready to run behind the opportunities.
- In the SHG members selected about 33% are illiterates, 43% finished their primary education, 20% received education up to matriculation and a very small percentage received pre university level education and no one has received higher education like graduation.
- Majority of SHG members (80%) are married only 6.67% are unmarried and 13.33% are widows.
- SHGs lending is reaching to the economic backward and minorities of the society.
- Before joining to SHGs the savings of the people were almost nil. 90% of the respondents were not saving anything. About 6.67% saving in between Rs. 0-50 per month. 2% were saving in between Rs.51-100 per month. About 1.33% was saving in between Rs.101-150 per month. No one saving above Rs.150 per month.
- The socio-economic status of the SHG members was improved after joining to SHGs. All the members were started saving upto Rs. 200 per month before no one saved above Rs. 150 per month. 90% of the people are in a position to repay the loan in time. 45% of the people started income generating activities. 70% of the people are buying electronic and other physical assets like vehicles etc.,

Status of the women also improved in the family as well as society. Earlier they were neglected group of people. They were not taking any participation in decision making both in financial and other family related matters. They were not much exposed to outside world and facilities available to them. Now they are more aware of the various government schemes taking active participation even in village activities and competitions. They got recognition in family, society etc.

- Among 150 respondents 90% are engaged in entrepreneurial activities and only 10% are utilizing the borrowed money for meeting family expenditure and other social obligations like marriages etc.,
- Before becoming SHG members, a few i.e., about 2% were borrowing from commercial banks, 80% of the people use to borrow from local money lenders by paying exorbitant interest rates.
- SHG members are now more aware of uses for borrowing from SHGs. 96% of the respondents are feeling that they are borrowing from SHGs because they are easily accessible, easy and manageable installments, lesser interest rates compared to money lenders, less formalities compared to commercial banks and no need of giving any collaterals.

4. Apart from the above uses the respondents further feel that SHGs will provide timely finance at affordable interest rates, which are helping in competency building of the members through giving vocational training to improve their skills etc. These will ultimately help in developing of entrepreneurial activities among the members of SHGs.
5. Among 150 respondents, majority (80%) are doing the traditional occupation of weaving silk sarees through handlooms as it is regarded as sick industry, Banks and other financiers denied giving loans to them. These people do not know other types of work and their heavy investments in installation of handlooms forced to continue the same work. But, micro finance through SHGs rescued them by providing the required working capital, this industry is sustaining only with the help of SHGs.

SUGGESTIONS

1. The Banks and other voluntarily organizations should show keen interest to improve these schemes and should decrease the outreach gradually.
2. The Government as well as some well established organizations should arrange Entrepreneurship development programmes and vocational training for SHG members. Further the training programme should design in such a way, that it should fulfill the requirements of utilizing and encouraging traditional and local industries. For e.g. In the selected area of study majority of silk saree weavers are concentrated they should be given training in this direction.
3. Women entrepreneurs should give more and more training regarding marketing skills.
4. Women entrepreneurs should be more and more educated. More loans should be given to educated women, so that, it increases their confidence and even they get encouragement from family level.
5. As the repayment rate is 100% guarantee, and it will be repaid once in a week, fortnight etc. The bankers and other organizations can offer loans to them at little lesser rates of interest.
6. Loans should be given on the basis of their actual requirement and not on the basis of their savings.
7. Loans for productive purposes should be encouraged more and more. Here it is appropriate to quote that a hungry man should be trained for how to fish rather than giving a fish to him.
8. Government and other NGOs should create more and more awareness programmes regarding various schemes of government for self employment, poverty reduction and women empowerment.

CONCLUSIONS

The study showed that, the economic status of women improved. They have started saving money, taking active participation in decision making. They are also involving themselves in social work. Their contribution is more and more towards family and in some cases they are maintaining the families just like men, at rural levels.

Earlier many poor people and women were unbankable persons. They use to depend on the money lenders for their requirements. Money lenders were charging exorbitant interest rates. Now, the support from banks and NGOs making the Members of SHGs, to engage in entrepreneurial activities. Thus, it can be concluded that SHGs are playing active and positive role in women empowerment and development of women entrepreneurship.

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ANDHRA PRADESH STATE FINANCIAL CORPORATION FOR THE DEVELOPMENT OF MICRO, SMALL AND MEDIUM ENTERPRISES (MSMEs) - A STUDY OF TIRUPATI BRANCH IN CHITTOOR DISTRICT

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ABSTRACT

Small and Medium Enterprises (SMEs) are one of the fastest growing small and medium enterprises sector in the world. The potentialities of small and medium enterprises for developing the economy have been recognized by many countries and the promotion of small firms is regarded as a way of enabling the local population to participate actively in one's country's economic and its social development. In many countries, the small and medium enterprises sector has been playing an active role in generating employment at lower cost by establishing an entrepreneurial base even in rural and backward areas. In agriculture-based economies, the small and medium enterprises sector plays a very important role in economic and social transformation of the country by providing inputs to agriculture and related activities and to rural infrastructure development, processing agricultural outputs for domestic consumption and export, and producing goods and services for local consumption. This paper seeks to review the share of Micro, Small and Medium Enterprises (MSMEs) in the Indian economy. Andhra Pradesh State Finance Corporation, Tirupati Branch, financial assistance to promote the Micro, Small and Medium Enterprises (MSMEs) in the Chittoor District, and its impact on performance on the SMEs. An attempt is made in this research paper to find which type of problems is faced by the SMEs/entrepreneurs in general and financial problems in particular. The paper concludes the viable suggestions which are offered hereafter to improve the conditions of the SMEs and their entrepreneurs in Chittoor District, would be, it is hoped equally helpful to remedy the situation in the other districts of the state.

KEYWORDS

Role of finance in enterprises development, Andhra Pradesh State Finance Corporation, Tirupati Branch, Impact of the APSFC assistance, Problems of MSMEs, Suggestions.

INTRODUCTION

Soon after independence, India's economic plans envisaged setting up a wide spectrum of industries as a crucial development strategy to achieve self-sustaining economic growth, which would require a massive capital. In the developing countries like India, industries can no longer offer to be just the one-man show. They are now to be managed by "techno structure". Several industrial sectors stand in urgent need of modern automatic machines to enable them to produce better quality products at lower costs so as to sell them at competitive rates in International markets. Industrial growth can be spearheaded by a much needed shift of attention from pre requisites for location of enterprises, problems of dispersal, infrastructure, and entrepreneurial motivation to development of management consultancy, prompt decision-making and advisory services for industries in India¹. All this improvement requires tremendous credit for long, medium and short periods.

Small and medium enterprises are one of the fastest growing small and medium enterprises sector in the world. The potentialities of small and medium enterprises for developing the economy have been recognized by many countries and the promotion of small firms is regarded as a way of enabling the local population to participate actively in one's country's economic and its social development. In many countries, the small and medium enterprises sector has been playing an active role in generating employment at lower cost by establishing an entrepreneurial base even in rural and backward areas. In agriculture-based economies, the small and medium enterprises sector plays a very important role in economic and social transformation of the country by providing inputs to agriculture and related activities and to rural infrastructure development, processing agricultural outputs for domestic consumption and export, and producing goods and services for local consumption.

The Micro, Small and Medium Enterprises (SMEs), which account for over 90 Per cent of enterprises in all countries, are an important source of output and employment. They employ 33 per cent of formal sector workers in low-income countries and 62 per cent of such workers in high-income countries. Because poor countries have large informal economies, dominated by micro-businesses, the SMEs portion of total employment is much higher. In India, for example, 86 per cent of the labour force is employed in the informal sector, including farming. In India, there are 13 million SMEs employing around 30 million people, creating one million jobs per annum, contributing 45 - 50 per cent of exports and 40 per cent to industrial output and producing more than 8,000 products. Furthermore, it has been estimated that every million rupees of investment in fixed assets in this sector produces 4.62 million rupees worth of goods or services,

and generates employment for 40 persons. In 2006-07 there were 12.84 million SMEs in the country employing about 31.25 million people². It indicates that the SMEs have become the backbone of the Indian manufacturing sector and the engine of economic growth. With the keen competition among the emerging market economies to accelerate the economic growth, a healthy and vibrant SME sector can play a significant role in contributing to the sustainable and equitable development of a nation.

ROLE OF FINANCE IN ENTERPRISES DEVELOPMENT

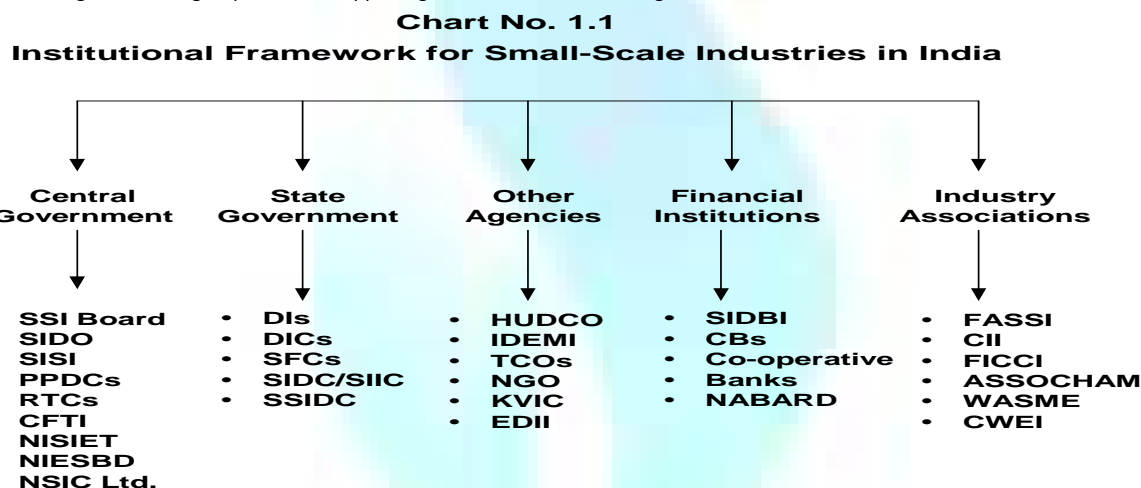
Finance is the base of all economic operations. It is a new input of production, distribution and development in the SMEs concerns the supply of funds regulates their activities. In their absence either programmes would not be completed or the concerns would not be able to make fair returns to their share-holders who are the owners. Therefore the financial requirements of an enterprise need prompt and proper attention³.

For the promotion, development and effective running of an enterprise, adequate finances are a fundamental prerequisite. A lot of money is required as fixed capital to procure the necessary land and buildings, plant and machinery, furniture and fixtures etc. In addition, a firm has also to procure necessary funds for financing its working capital for the purpose of purchase of raw-material, payment of wages, salaries, rent, interest, remuneration etc. to a number of persons/institutions engaged either directly or indirectly in the production process or commercial operations of the enterprise. Whenever the management of an enterprise thinks of launching any programme of reorganization, reconstruction or expansion, the first thing that should attract its attention is finance.

INSTITUTIONAL FINANCE AND SMEs DEVELOPMENT

The SMEs concerns were procuring their financial requirements, in the early stages of industrialization in India, mainly from private finances of the proprietors, friends and relatives of proprietors, attracting public deposits and obtaining loans from commercial banks, investment trusts etc. But now the pattern of financing enterprise has changed remarkably. A large number of special financial institutions have been set up both by the Central and State Governments in order to cater to the needs of financing the SMEs viz. large, medium and small-scale. These financial institutions have been entrusted with a variety of functions and responsibilities, i.e., financing large, medium, small and micro enterprises and financing fixed and working capital. To mention a few of such institutions, the Industrial Finance Corporation of India, the Industrial Development of India, the State Financial Corporations etc, which are set up to help various enterprises and their financial needs.

Keeping in view the importance of entrepreneurs of Small and Medium Enterprises, the government of India has made considerable efforts to promote its growth during the last six decades. The strategy for its development comprises formulation and pursuance of deliberate policies for its protection and development, stepping up plan allocations, evolving and implementing various programmes for its development including extension of concessional finance, both short-term and long term, through a plethora of supporting institutions⁴. The following is the institutional framework for the SMEs in India.



Of these, SFCs are catering the needs of both short-term and long term financial requirements and managerial assistance of the SMEs.

ANDHRA PRADESH STATE FINANCIAL CORPORATION

As a part of the policy measures adopted by the Government of India in order to boost industrial development, almost all the States have established Financial Corporations in their respective states. In Andhra Pradesh "The Andhra Pradesh State Financial Corporation" (APSFC) was established on 1st November 1956 a under Special Act passed by the State Legislature with the main objective of extending financial assistance for setting up industrial units in Tiny, Small-scale and Medium-scale sectors and also service enterprises. The Industrial Development Bank of India (IDBI) and Government of Andhra Pradesh jointly promote the APSFC. Since the date of inception, the APSFC has been playing a significant role in taking the State to its rightful place on the industrial map of the country. The Corporation has launched many entrepreneur-friendly schemes to provide term loans, working capital term loans, bridge loans and special and seed capital assistance to suit the needs of various categories of entrepreneurs⁵. The Corporation has completed fifty five years of service in industrial financing of tiny, small and medium-scale sector units and contributing to the balanced regional development of the state⁶. The Small and Medium Enterprises sector has been its thrust area, which is evidenced from the significant amount of sanctions and disbursements channelised by it to this vital sector⁷.

Andhra Pradesh embarked upon a Mission, which was, to be at the forefront of enterprises development in the country by the year 2020. But fulfilling this Mission needs not only ideas and dreams but also a lot of hard, work and realistic planning guided by well spelt out policy directions. In 1995, the State Government enunciated its Industrial Policy 'Target 2000' which set the tone for adopting a new approach to the SMEs development in the liberalized economy. One of the objectives of this New Industrial Policy was to promote the growth of small and medium enterprises to help the small entrepreneurs.

The present article is concerned with the small and medium enterprises and entrepreneurs in Chittoor district of Andhra Pradesh, the study area. This district is one of the industrially backward districts in the state. In all 120 small and medium enterprises and entrepreneurs were identified and studied. The reliable information was collected from the sample enterprises. The performance of an enterprise cannot be looked into apart from that of the entrepreneur as it depends very much upon his efforts, hard work and commitment. In the present study, whether it is that of the entrepreneur or of the enterprise, the evaluation is made on the basis of group performance rather than that of an individual enterprise or entrepreneur. The success of existing enterprises and their growth fosters entrepreneurship in diversified areas. Therefore an effort has been made here to observe the extent of development made by the SMEs in the study district.

The present study entitled "Role of Andhra Pradesh State Financial Corporation for the Development of Small and Medium Enterprises - A Study of Tirupati Branch in Chittoor District" is a modest attempt is made. It makes an attempt to highlight the financial problems faced by the entrepreneurs in Chittoor district and present them in the following pages.

OBJECTIVES

The present study has the following objectives:

1. To study the role of Andhra Pradesh State Financial Corporation, Tirupati Branch in promoting entrepreneurship in the Small and Medium Enterprises Sector in the Chittoor District;
2. To assess the impact of Andhra Pradesh State Financial Corporation, Tirupati Branch financial assistance on Small and Medium Enterprises in the study area; and
3. To identify the problems and prospects of enterprises / entrepreneurs in the Small and Medium Enterprises Sector and to offer suggestions for promoting entrepreneurship in the sector.

METHODOLOGY

In view of the specific objectives of the present study, it uses primary data. It contemplates a one-pronged approach. It focuses attention on a sample of 120 enterprises / entrepreneurs financed by the APSFC in Chittoor District of Andhra Pradesh.

SAMPLE DESIGN

The present study adopts sample of 20 per cent of the total entrepreneurs who are assisted by the Andhra Pradesh State Financial Corporation, Tirupati Branch in Chittoor District during the period from 1999 to 2009 has been chosen. The sample includes only the entrepreneurs who got financial assistance from Andhra Pradesh State Financial Corporation. Great care has been taken to cover all the entrepreneurs of all the categories of small and medium enterprises in the district. The entrepreneurs both men and women in the study district are listed out. There are 600 small and medium enterprises of all categories. From among them, 20 per cent of entrepreneurs who got financial support from Andhra Pradesh State Financial Corporation, Tirupati Branch are selected from all categories of small and medium enterprises in the district. Thus the total sample of the entrepreneurs comes to be 120 (600 x 20%). After a personal survey of study area and the SMEs in it, as many as 120 enterprises could be identified. They are as follows.

TABLE NO. 1: LIST OF SAMPLE ENTERPRISES

Category	No. of Enterprises
Lodge & Hotels	8
Functional Halls & Kalyanamadapam	7
Stone Crushers and Granite	27
Rice & Dall Mills	9
SSI Products	5
Marketing	5
Wood	8
Construction	4
Furniture	4
Agra & Food	13
Retraders	5
Milk	2
Printing & Packing	2
Agencies	2
Others	19
Total	120

These Enterprises as their entrepreneurs have been used as the study sample.

DATA COLLECTION

The study makes use of pre-tested schedules prepared for the entrepreneurs and collect quantitative data. The data collected from the select entrepreneurs includes their financial problems faced by them.

SIGNIFICANCE OF THE PRESENT STUDY

Entrepreneurial development is an index of the industrial development and the overall economic development of a country. The success of the economy mainly depends on entrepreneurial skills and quality, competence and performance of those involved in it. India is developing fast economically, has to find, nourish and develop competent entrepreneurship, which is very vital for its rapid industrialization. It is necessary that studies of this theme have to be continually carried out and the progress made assessed. The present micro study of small and medium enterprise sector in Chittoor District and the contribution of the Andhra Pradesh State Finance Corporation, Tirupati Branch is a modern contribution towards it.

LOAN TYPE-WISE CLASSIFICATION OF ENTERPRISES

The following Table presents the loan type-wise classification of enterprises during the study period.

TABLE NO. 2: LOAN TYPE-WISE CLASSIFICATION OF ENTERPRISES

Years	Type of Loans						Total	%
	T.L.	W.C.	S.C.	T.L.& S.C.	T.L.&W.C.	T.L.,W.C.&S.C.		
1999-00	4	-	-	-	-	-	4	3.33
2000-01	3	-	-	-	-	-	3	2.5
2001-02	9	-	-	-	-	-	9	7.5
2002-03	9	1	-	-	-	-	10	8.33
2003-04	8	1	-	1	-	-	10	8.33
2004-05	6	2	-	2	-	-	10	8.33
2005-06	9	2	-	1	-	-	12	10.00
2006-07	8	5	-	2	1	-	16	13.33
2007-08	11	5	-	-	-	1	17	14.17
2008-09	16	9	-	3	-	1	29	24.17
Total	83	25	-	9	1	2	120	-
%	69.17	20.83	-	7.50	0.83	1.67	-	100.00

Source: Field Survey.

The above Table reveals that 83 out of the 120 enterprises (69.17 per cent) obtained term loan (TL) during the study period, followed by 25 (20.83 per cent) enterprises which got working capital loan (WCL), 9 (7.50 per cent) enterprises got both term loan and seed capital loan (SCL), 2 (1.67 per cent) enterprises got term loan, working capital loan and seed capital loan and 1 (0.83 per cent) enterprise got both term loan and working capital loan. The figures show that most of the enterprises got term loans.

LOAN PURPOSE-WISE CLASSIFICATION OF ENTERPRISES

The following Table presents the loan purpose-wise classification of the sample enterprises which were assisted by the APSFC during the study period.

TABLE NO. 3: LOAN PURPOSE-WISE CLASSIFICATION OF ENTERPRISES

No.	Purpose	No. of Enterprises	Percentage
1	Establishment of new unit	83	69.17
2	Expansion of the existing unit	37	30.83
3	Diversification	-	-
4	Rehabilitation of sick unit	-	-
5	Replacement/modernization of existing unit	-	-
6	Power generation	-	-
7	Overrun finance	-	-
Total		120	100.00

Source: Field Survey.

Table No. 3 above reveals that the APSFC, Tirupati Branch sanctioned loans to 83 out of the 120 sample enterprises (69.17 per cent) for establishing new enterprises, and 37 (30.83 per cent) enterprises for the expansion of existing enterprises. But there were no loans sanctioned for the diversification, rehabilitation of sick enterprises, replacement/modernization of existing enterprises, power generation and overrun finance. The figures indicate that the APSFC sanctioned loans only for the establishment of new enterprises and expansion of existing enterprises.

IMPACT OF THE APSFC ASSISTANCE

The following Table 4 exhibits the impact of the APSFC assistance on the small enterprises in different key indicators.

TABLE NO. 4: IMPACT OF THE APSFC ASSISTANCE

No.	Indicators	No. of Enterprises			
		Decrease	Constant	Increase	Total
1	Management of Human Resource	14 (11.67)	11 (9.17)	95 (79.16)	120 (100.00)
2	Management Financial Resource	8 (6.67)	14 (11.67)	98 (81.67)	120 (100.00)
3	Improvement in Product Line	14 (11.67)	17 (14.17)	89 (74.17)	120 (100.00)
4	Purchase of Raw Materials	8 (6.67)	41 (34.17)	71 (59.17)	120 (100.00)
5	Output	4 (3.33)	19 (15.83)	97 (80.83)	120 (100.00)
6	Variable Expenses	4 (3.33)	65 (54.17)	51 (42.50)	120 (100.00)

Source: Field Survey.

The above Table reveals that of the 120 sample enterprises the management of human resource of 95 (79.16 per cent) enterprises increased after obtaining loans from the APSFC, in the case of 11 (9.17 per cent) enterprises it was constant and in 14 enterprises (11.67 per cent) it decreased. The management of financial resource of 98 (81.67 per cent) sample enterprises increased after taking loan from the APSFC, it was constant in the case of 14 (11.67 per cent) enterprises, and in the case of 8 enterprises (6.67 per cent) it decreased. There was an increase in the product line of 89 (74.17 per cent) enterprises after obtaining loan from the APSFC. In the case of 17 (14.17 per cent) enterprises it was constant and in 14 enterprises (11.67 per cent) it decreased. The purchase of raw materials by 71 (59.17 per cent) enterprises increased after taking loan from the APSFC. It was constant in the case of 41 (34.17 per cent) enterprises and it decreased in 8 enterprises (6.67 per cent). The output of 97 (80.83 per cent) enterprises increased after obtaining loan from the APSFC. It was constant in the case of 19 (15.83 per cent) enterprises, and in 4 enterprises (3.33 per cent) it decreased. The variable expenses of 51 (42.50 per cent) enterprises increased after taking loan from the APSFC. They were constant in the case of 65 (54.17 per cent) enterprises and in 4 enterprises (3.33 per cent) it decreased. These figures indicate that the majority of the sample enterprises which were assisted by the APSFC are in a developing trend.

PERFORMANCE OF THE ENTERPRISES

The following Table 5 exhibits the impact of the APSFC assistance on small and medium enterprises in major key financial indicators.

TABLE NO. 5: PERFORMANCE OF THE ENTERPRISES

No.	Particulars	No. of Enterprises			
		Decrease	Constant	Increase	Total
1	Sales	10 (8.33)	-	110 (91.67)	120 (100.00)
2	Cost of Goods Sold	13 (10.83)	-	107 (89.17)	120 (100.00)
3	Gross Profit	8 (6.67)	-	112 (93.33)	120 (100.00)
4	Operating Expenses	14 (11.67)	-	106 (88.33)	120 (100.00)
5	Profits Before Interest and Tax	17 (14.17)	-	103 (85.83)	120 (100.00)
6	Net Profits	17 (14.17)	-	103 (85.83)	120 (100.00)

Source: Field Survey.

The above Table reveals that the sales of 110 (91.67 per cent) enterprises out of 120 enterprises increased after taking loan from the APSFC. In 10 (8.33 per cent) enterprises it decreased. The cost of goods sold by 107 (89.17 per cent) enterprises out of sample increased after taking loan from the APSFC, and in 13 enterprises (10.82 per cent) it decreased. The gross profit of 112 (93.33 per cent) enterprises increased after obtaining loan from the APSFC, and in 8 enterprises (6.67 per cent) it decreased. The operating expenses of 106 (88.33 per cent) enterprises increased after taking loan from the APSFC, and in the case of 14 enterprises (11.67 per cent) it decreased. The profit before interest and tax of 103 (85.83 per cent) enterprises increased after receiving loans from the APSFC, and in 17 (14.17 per cent) enterprises it decreased. The net profit of 103 (85.83 per cent) enterprises increased after taking loan from the APSFC, where as in 17 (14.17 per cent) enterprises, it decreased. These figures indicate that the majority of the sample enterprises which were assisted by the APSFC have performed well financially.

GENERAL PROBLEMS OF ENTREPRENEURS

The following Table 6 presents the general problems of the entrepreneurs who are assisted by the APSFC.

TABLE NO. 6: GENERAL PROBLEMS OF ENTREPRENEURS

No.	Problems	No. of Enterprises	Percentage
1	Non-cooperation attitude of the APSFC	15	12.50
2	Lack of Proper knowledge of the APSFC	12	10.00
3	Unfavorable terms and conditions of the APSFC	29	24.17
4	Lack of collateral security	35	29.17
5	Lack of training	26	21.67
6	All of the above	3	2.50
Total		120	100.00

Source: Field Survey.

The above Table reveals that the 35 (29.17 per cent) entrepreneurs out of the sample 120, experienced lack of collateral security. They are followed by 29 (24.17 per cent) entrepreneurs who face the unfavourable terms and conditions of the APSFC. 26 (21.67 per cent) entrepreneurs complains of lack training, 15 (12.50 per cent) entrepreneurs complained about the non-cooperation attitude of the APSFC, 12 (10.00 per cent) entrepreneurs admitted that they lacked proper knowledge of the APSFC and 3 (2.50 per cent) entrepreneurs faced all of the above problems. The figures reveal that among the general problems faced by the sample entrepreneurs lack of collateral security, unfavourable terms and conditions imposed by the APSFC, and lack of training, appear to stand out.

ENTREPRENEURS FINANCIAL PROBLEMS WHILE GETTING LOAN FROM THE APSFC

The following Table 7 presents the problems of entrepreneurs while getting loans from the APSFC.

TABLE NO. 7: ENTREPRENEURS PROBLEMS WHILE GETTING LOANS FROM THE APSFC

S. No.	Problems	No. of Entrepreneurs	Percentage
1	Inadequate sanction of amount	66	55.00
2	Discriminatory treatment of the SSIs	9	7.50
3	Procedural delay	45	37.50
Total		120	100.00

Source: Field Survey.

Table 7 reveals that 66 (55.00 per cent) entrepreneurs out of 120 faced the problem of inadequate amount sanctions loans by the APSFC, 45 (37.50 per cent) entrepreneurs faced the problem of procedural delay by the APSFC and 9 (7.50 per cent) entrepreneurs felt that the SMEs were subjected to discriminatory treatment by the APSFC. More than half of the sample entrepreneurs felt that the loan amount sanction was much less than they required. A little more than one-third of the sample found needless procedural delays by the Corporation a great hurdle.

FINANCIAL PROBLEMS

The following Table shows the financial problems of entrepreneurs who are assisted by the APSFC.

(In the following three Tables, the responses of 96 sample entrepreneurs only have been taken into consideration for all calculations, because out of the total sample of 120 entrepreneurs, only these 96 responded to the questions concerned. Why the remaining 24 entrepreneurs did not respond, it is difficult to say.)

TABLE NO. 8: ENTREPRENEURS FINANCIAL PROBLEMS

No.	Problems	No. of Entrepreneurs	Percentage
1	Shortage of Fixed capital (F.C.)	11	11.46
2	Shortage of Working capital (W.C.)	45	46.88
3	1 & 2 (F.C.) & (W.C.)	4	4.16
4	High Interest Rate	36	37.50
Total		96	100.00

Source: Field Survey.

The above Table 8 reveals that 96 (80.00 per cent) entrepreneurs out of the sample faced different financial problems. Of them 45 (46.88 per cent) entrepreneurs faced shortage of working capital, 36 (37.50 per cent) entrepreneurs found the rate of interest high, 11 (11.46 per cent) entrepreneurs faced shortage of fixed capital and 4 (4.16 per cent) entrepreneurs faced both shortage of fixed and working capital. The figures reveal that shortage of working capital and high interest rate troubled more than two thirds (81) of the sample entrepreneurs.

ORGANIZATION-WISE CLASSIFICATION OF FINANCIAL PROBLEMS OF ENTERPRISES

The following Table shows the organization-wise financial problems of enterprises which are assisted by the APSFC.

TABLE NO. 9: ORGANIZATION-WISE CLASSIFICATION OF FINANCIAL PROBLEMS OF ENTERPRISES

Problems	Organizations			Total
	Proprietorship	Partnership	Private Ltd.Co.	
Shortage of F.C.	5 (13.51)	5 (9.09)	1 (25.00)	11 (11.46)
Shortage of W.C.	10 (27.03)	34 (61.82)	1 (25.00)	45 (46.88)
Shortage of F.C. & W.C.	1 (2.70)	1 (1.82)	2 (50.00)	4 (4.16)
High rate of interest	21 (56.76)	15 (27.27)	-	36 (37.50)
Total	37 (100.00) (38.54)	55 (100.00) (57.29)	4 (100.00) (4.17)	96 (100.00) (100.00)

Source: Field Survey.

The above Table 9 reveals that out of 96 sample entrepreneurs 37 (38.54 per cent) proprietorship enterprises faced from financial problems. Of them 5 (13.51 per cent) faced shortage of fixed capital, 10 (27.03 per cent) faced shortage of working capital, 1 (2.70 per cent) enterprise faced both shortage of fixed and working capital and 21 (56.76 per cent) enterprises faced high interest rate. These problems are faced by 55 (57.29 per cent) partnership concerns too. Of them 5 (9.09 per cent) enterprises faced shortage of fixed capital, 34 (61.82 per cent) faced shortage of working capital, 1 (1.82 per cent) enterprise faced both shortage of fixed and working capital, and 15 (27.27 per cent) enterprises faced high interest rate. Further, the same problems are faced by 4 (4.17 per cent) private limited companies. Of them 1 (25.00 per cent) faced shortage of fixed capital, 1 (25.00 per cent) enterprise faced shortage of working capital, and 2

(50.00 per cent) enterprises faced both shortage of fixed and working capital. The figures reveal that more than half of the proprietorship enterprises (21) faced the problem of high rate of interest, and less than one-third (10) shortage of working capital. Nearly two-third of the partnership enterprises (34) faced shortage of working capital, and 15 or less than one-fourth high rate of interest. Two private limited enterprises faced both shortage of working and fixed capital and one each shortage of working capital and shortage of fixed capital.

ACTIVITY-WISE CLASSIFICATION OF FINANCIAL PROBLEMS OF ENTERPRISES

The following Table 10 shows the activity-wise classification of financial problems faced by the enterprise which are assisted by the APSFC.

TABLE NO. 10: ACTIVITY-WISE CLASSIFICATION OF FINANCIAL PROBLEMS OF ENTERPRISES

Problems	Activity				Total
	Trade	Manf.	Both*	Service	
Shortage of F.C.	4 (33.34)	5 (17.86)	1 (5.00)	1 (2.78)	11 (11.46)
Shortage of W.C.	6 (50.00)	13 (46.43)	7 (35.00)	19 (52.78)	45 (46.88)
Shortage of F.C. & W.C.	1 (8.33)	2 (7.14)	-	1 (2.77)	4 (4.16)
High rate of interest	1 (8.33)	8 (28.57)	12 (60.00)	15 (41.67)	36 (37.50)
Total	12 (100.00) (12.50)	28 (100.00) (29.17)	20 (100.00) (20.83)	36 (100.00) (37.50)	96 (100.00) (100.00)

Source: Field Survey.

* Trade and manufacturing.

Table 10 above reveals that out of 96 sample enterprises, 12 (12.50 per cent) which are trade enterprises are faced with financial problems. Of them 4 (33.34 per cent) are faced with shortage of fixed capital, 6 (50.00 per cent) with shortage of working capital, 1 (8.33 per cent) with both shortage of fixed and working capital and 1 (8.33 per cent) enterprise faced with high interest rate. Among 28 (29.17 per cent) manufacturing enterprises, 5 (17.86 per cent) enterprises are faced with shortage of fixed capital, 13 (46.43 per cent) faced with shortage of working capital, 2 (7.14 per cent) faced with both shortage of fixed and working capital, and 8 (28.58 per cent) enterprises faced with high interest rate. The above problems are shortage of fixed capital, 7 (35.00 per cent) enterprises are faced with shortage of working capital, and 12 (60.00 per cent) enterprises with high interest rate. Among the 36 (37.50 per cent) service enterprises, 1 (2.78 per cent) enterprise is faced with shortage of fixed capital, 19 (52.78 per cent) are faced with shortage of working capital, 1 (2.77 per cent) faced with shortage of both fixed and working capital, and 15 (41.67 per cent) enterprises are faced with high rate of interest. The figures reveal that half of the trade enterprises are faced with shortage of working capital, and 4 fixed capital. Less than half of the manufacturing enterprises are faced with shortage of working capital, and a little more than one-third high rate of interest, and the majority of both trade and manufacturing enterprises are faced with high rate of interest.

LOCATION-WISE CLASSIFICATION OF FINANCIAL PROBLEMS OF ENTERPRISES

The following Table shows the location-wise classification of financial problems faced by the sample enterprise which are assisted by the APSFC.

TABLE NO. 11: LOCATION-WISE CLASSIFICATION OF FINANCIAL PROBLEMS OF ENTERPRISES

Problems	Location				Total
	Village	Town	DHQ	IE	
Shortage of F.C.	5 (22.73)	1 (1.96)	2 (33.33)	3 (17.65)	11 (11.46)
Shortage of W.C.	11 (50.00)	18 (35.29)	3 (50.00)	13 (76.47)	45 (46.88)
Shortage of F.C. & W.C.	2 (9.09)	-	1 (16.67)	1 (5.88)	36 (37.50)
High rate of interest	4 (18.18)	32 (62.75)	-	-	4 (4.16)
Total	22 (100.00) (22.92)	51 (100.00) (53.13)	6 (100.00) (6.25)	17 (100.00) (17.72)	96 (100.00) (100.00)

Source: Field Survey.

DHC = District Head Quarters; IE = Industrial Estate.

The above Table 11 reveals that the 22 out of 96 (22.92 per cent) enterprises which are located in villages are faced with financial problems. Of them 5 (22.73 per cent) enterprises are faced with shortage of fixed capital, 11 (50.00 per cent) faced with shortage of working capital, 1 (9.09 per cent) faced with both shortage of fixed, and working capital and 4 (18.18 per cent) enterprises are faced with high interest rate. Of the 51 (53.13 per cent) enterprises located in towns none faced the problem of shortage of fixed and working capital. Of them 1 (1.96 per cent) enterprise faced with shortage of fixed capital, 18 (35.29 per cent) faced with shortage of working capital, and 32 (65.75 per cent) enterprise are faced with high interest rate. Among the enterprises located in the district head-quarters 2 (33.33 per cent) enterprises are faced with shortage of fixed capital, 3 (50.00 per cent) are faced with shortage of working capital, and 1 (16.67 per cent) faced with both shortage of fixed and working capital. Further, all the above problems except high rate of interest are faced by the 36 (37.50 per cent) industrial estate enterprises. Of them 3 (17.65 per cent) are faced with shortage of fixed capital, 13 (76.47 per cent) enterprise are faced with shortage of working capital and 1 (5.88 per cent) enterprise is faced with shortage of both fixed and working capital.

The figures reveal that 11 or 50.00 per cent of the enterprises are located in villages are faced with shortage of working capital, 32 or 62.75 per cent of the town enterprises are faced with high rate of interest, 3 or 50 per cent of the district head-quarters enterprises are faced with shortage of working capital, and 13 or 76.47 per cent of the industrial estate enterprises are faced with shortage of working capital.

TYPE OF ASSISTANCE REQUIRE BY THE APSFC

The following Table 12 shows the type of assistance by the APSFC, required by the sample entrepreneurs.

TABLE NO. 12 TYPE OF ASSISTANCE REQUIRE BY THE APSFC

No.	Type of Assistance	No. of Units	Percentage
1	Financial	35	29.17
2	Marketing	15	12.50
3	Export	6	5.00
4	1 & 2 (Financial & Marketing)	12	10.00
5	2 & 3 (Marketing & Export)	9	7.50
6	1, 2 & 3 (Financial, Marketing & Export)	4	3.33
7	Training	39	32.50
Total		120	100.00

Source: Field Survey.

The above Table 12 reveals that out of the 120 sample entrepreneurs, the 39 (32.50 per cent) require training, followed by 35 (29.17 per cent) who require finance, 15 (12.50 per cent) marketing, 12 (10.00 per cent) require both finance and marketing, 9 (7.50 per cent) require assistance for both marketing and export, 6 (5.00 per cent) require export and 4 (3.33 per cent) require finance, marketing and export. The figures indicate that 39 of the entrepreneurs require training, 35 want finance, 15 marketing and 6 exports. Interestingly, 12 want assistance in finance and marketing, 9 help in marketing and export, and only 4 require assistance in finance, marketing and export.

ENTREPRENEURS' ATTITUDE TOWARDS THE APSFC

The following Table 13 presents the entrepreneurs attitude towards the APSFC.

TABLE NO. 13: ENTREPRENEURS' ATTITUDE TOWARDS THE APSFC

S. No.	Performance	No. of Entrepreneurs	Percentage
1	Very good	8	6.67
2	Moderate	59	49.17
3	Average	43	35.83
4	Poor	10	8.33
Total		120	100.00

Source: Field Survey.

The Table 13 shows that out of the entrepreneurs' sample of 120, 59 (49.17 per cent) entrepreneurs have a moderate attitude towards the APSFC. They are followed by 43 (35.83 per cent) entrepreneurs' who view it as, average 10 (8.33 per cent) entrepreneurs' find it poor, and only 8 (6.67 per cent) entrepreneurs regard the APSFC as very good. They indicate that the majority of entrepreneurs are neither wholly satisfied nor wholly disappointed with the Corporation. To put it in other words, the Corporation has to do much more to meet the needs of the small entrepreneurs.

CAUSES FOR DEFAULT IN REPAYMENT

The following Table 14 presents the causes of entrepreneurs' for their default in repayment of installments of loans to the APSFC.

TABLE NO. 14: ENTREPRENEURS' REASONS FOR DEFAULT IN REPAYMENT

S. No.	Causes	No. of Entrepreneurs	Percentage
1	Heavy amount of repayment	18	60.00
2	Inadequate profits	6	20.00
3	Lack of cash reserves	6	20.00
Total		30	100.00

Source: Field Survey.

The above Table 14 reveals that 30 of the sample entrepreneurs are in default in repayment of installments to the APSFC. Of them, 18 (60.00 per cent) entrepreneurs find the amount of repayment very heavy, 6 (20.00 per cent) entrepreneurs default because of inadequate profits and 6 (20.00 per cent) entrepreneurs are defaulters for lack of cash reserves. It is clear that the majority of them are at default due to the heavy amount of repayment.

FINDINGS

- 83 out of the 120 enterprises (69.17 per cent) obtained term loan (TL) during the study period, followed by 25 (20.83 per cent) enterprises which got working capital loan
- The APSFC sanctioned loans only for the establishment of new enterprises and expansion of existing enterprises.
- The majority of the sample enterprises which are assisted by the APSFC show a developing trend, and their financial performance has been by and large good.
- Among the general problems faced by the sample entrepreneurs' are lack of collateral security, unfavourable terms and conditions imposed by the APSFC, and lack of training, appear to stand out.
- More than half of the sample entrepreneurs felt that the loan amount sanctioned has been much less than their requirement. A little more than one-third of the sample found needless procedural delays by the Corporation a great hurdle.
- In spite of the assistance rendered by the Corporation 96 (80.00 per cent) entrepreneurs out of 120 are faced with different financial problems. Shortage of working capital and high interest rate has troubled more than 80 per cent of them.
- Half of the trade enterprises are faced with shortage of working capital, and 4 fixed capital. Less than half of the manufacturing enterprises are faced with shortage of working capital, and a little more than one-third high rate of interest, and the majority of both trade and manufacturing enterprises are faced with high rate of interest.
- 11 or 50.00 per cent of the enterprises which are located in villages are faced with shortage of working capital, 32 or 62.75 per cent of the town enterprises find the rate of interest high, 3 or 50 per cent of the district head-quarters enterprises are faced with shortage of working capital, and 13 or 76.47 per cent of the industrial estate enterprises are faced with shortage of working capital.
- 39 of the entrepreneurs require facilities for training, 35 want finance, 15 help for marketing, and 6 for exports. Interestingly, 12 entrepreneurs want assistance in finance and marketing, 9 want to help in marketing and export, and only 4 require assistance in all three finance, marketing and export.
- The majority of entrepreneurs are neither wholly satisfied nor wholly disappointed with the Corporation. To put it in other words, the Corporation has to do much more to meet the needs of the small entrepreneurs.
- Majority of the entrepreneurs are at default due to the heavy amount of repayment.

The present enquiry has made an attempt to study closely and systematically 120 sample enterprises and their entrepreneurs. It has also examined their responses to the several questions placed before them covering all aspects of their financial problems, and has statistically analysed their responses to be able to arrive at reliable conclusions. These have been presented in the previous pages. The problems listed here have emerged from a study of the small and medium enterprises in Chittoor District. But the other backward and not properly developed districts in the state too must be facing very much similar if not identical problem. Therefore the viable suggestions which are offered hereafter to improve the conditions of the small enterprises and their entrepreneurs in Chittoor District, would be, it is hoped equally helpful to remedy the situation in the other districts of the state.

SUGGESTIONS

- Only a few of women entrepreneurs are running small enterprises in the study district. Hence, emphasis has to be laid on the development of women entrepreneurship in the district. This is particularly necessary for women empowerment, which has become both necessary and urgent.
- Shortage of working and fixed capital continues to be the most common and urgent problem for the entrepreneurs. It is the most widely felt discouraging factor too. Entrepreneurs might be using all the resources for procuring fixed capital but may be finding it difficult to secure working capital. Therefore, liberal finances with liberal collateral security must be made available to the entrepreneurs.

3. Chittoor District is a backward area. People who live here are not rich and avenues for development are limited. For these reasons also special attention has to be given by the APSFC to solve the financial problems of the enterprises.
4. People belonging the categories of B.C, S.Cs and S.Ts are socially down-trodden and financially backward. So special care has to be taken by the APSFC to equip them with enough aid and liberal finances. Before providing them with enough finances, they have to be properly motivated through education and training.
5. 90 (75.01 per cent) entrepreneurs are faced with the problem of lack of collateral security, unfavourable terms and conditions and lack of training. So, the APSFC should liberalize the collateral security, and terms and conditions.
6. 111 (92.50 per cent) entrepreneurs find the loan amounts sanctioned inadequate. They are also troubled by procedural delays. Finance is the life blood of an enterprise. Therefore, the APSFC should provide adequate finance to the enterprises with liberal collateral security without delay.
7. Often the small and medium entrepreneurs find repaying loans burdensome and difficult because the installments are huge. The Corporation would do well to reduce the size of the repaying amount and also allow the creditors to repay annually rather than every quarter. Especially those entrepreneurs of mango enterprises have to wait for the annual season to realize their profits. Only then they would be able to repay.
8. Many find the present rates of interest levied by the Corporation rather high and heavy. It is both reasonable and humane to reduce them to lesser the burden of the enterprises and entrepreneurs.
9. It is pre-eminently desirable to implement promptly and effectively programmes for Marketing Assistance as well as Export Assistance.

All the above suggestions meant for improving the condition of small and medium enterprises and entrepreneurs are practicable. What is required is a felt concern for them and they will to act and implement them.

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IMPACT OF SERVICE QUALITY AND CUSTOMER SATISFACTION ON REPURCHASE INTENTION**ARUP KUMAR BAKSI****ASST. PROFESSOR****DEPARTMENT OF MANAGEMENT SCIENCE****BENGAL INSTITUTE OF TECHNOLOGY AND MANAGEMENT****SANTINIKETAN, WEST BENGAL****DR. BIVRAJ BHUSAN PARIDA****HEAD****DEPARTMENT OF TOURISM MANAGEMENT****THE UNIVERSITY OF BURDWAN****WEST BENGAL****ABSTRACT**

Over the years the researchers have delved deep in understanding the repurchase intention of the customers and its possible antecedents. Repurchase intention is considered to be a precursor to loyalty or in other words long-term customer retention by an organisation. Empirical studies have established that there is a strong and positive relationship between customer retention and profitability. Therefore studying repurchase intention has financial justification too. Repurchase intention of customers is quite critical to estimate for service organizations due to inherent peculiarities associated with service namely intangibility, heterogeneity and inseparability. It is apprehended that service quality and customer satisfaction may be the two major factors in stimulating repurchase intention amongst customers. The present paper attempts to analyse the impact of service quality and customer satisfaction on repurchase intention of the customers and the nature of relationship that these three variables share between them.

KEYWORDS

Service quality, repurchase, customer satisfaction.

INTRODUCTION

Customer satisfaction is a critical issue for the service industries keeping in mind the heterogeneity that exists in the same with respect to perception and expectation in quality. With the emergence of relationship marketing, customer retention has become the prime focal area of the service organizations since studies revealed that customer retention is linked with profitability. One of the antecedents of effective customer retention is customer satisfaction. Stock (2005) was of the view that customer satisfaction is an important driver of organizational performance. It has been also recognised as a key component of competitive strategies (Stank, Daugherty and Ellinger, 1997). The banking sector reforms in India have brought a sea change in the perception of personal banking. Private and foreign banks have exhibited their strong intention to snatch away competitive advantage which once was the sole prerogative of the nationalized banks. Technology has played a vital role in changing the perception of service quality amongst the bank customers and subsequently the level of satisfaction has altered. The nationalized banks in India are feeling the heat of rapid customer migration to their competitors. Modernization and automation has been taken up at a large scale level to meet the perceptual quality level of the customers for inducing repurchase intention and attitudinal loyalty. State Bank of India, following its post automation phase, has behaviourally altered its activities to become pro-customer in nature with the objective to retain valued customers by inducing repurchase intention.

REVIEW OF LITERATURE

Service quality is perceived as the impression customers assign to the superiority and inferiority of the service provider (Tsoukatos and Rand, 2006). Chau and Kao (2009) suggest that service quality and its dimensions have a direct bearing on customers' evaluation of a company and the intentions to choose the service provider. Kandampully (1998) states that the firms with loyalty to offer services to their customers yield returns in the shape of satisfied customers who are willing to stay with the organization. Turel et al. (2007) found that customers' adoption decision of the service provider depends on the quality offered and the price of the service provided.

Parasuraman, Zeithaml and Berry (1988) stated that 'Service quality is an abstract and elusive construct because of three features unique to services: intangibility, heterogeneity and inseparability of production and consumption'. Earlier in their path-breaking study Parasuraman, Zeithaml and Berry (1985) developed the SERVQUAL instrument with identified five dimensions of service quality namely tangibility, reliability, assurance, responsiveness and empathy to measure service quality. Identification of relationships between service quality and relevant constructs such as customer satisfaction, repurchase intention, long-term customer retention and attitudinal loyalty has become important for managerial judgments. Empirical studies revealed that satisfaction and quality are linked to customer retention and profitability (Fornell, 1992, Rust and Zahorik, 1993, Patterson and Spreng, 1997). Stock (2005) was of the view that customer satisfaction is an important driver of organizational performance and according to Stank, Daugherty and Ellinger, (1997) is a key component of competitive strategies. A number of researchers (Oliver, 1981; Brady and Robertson, 2001; Lovelock, Patterson and Walker, 2001) conceptualize customer satisfaction as an individual's feeling of pleasure or disappointment resulting from comparing perception with regard to a service to the expectation out of the same. Studies have revealed that there are two basic conceptualizations of satisfaction namely transaction-specific satisfaction and cumulative satisfaction (Boulding et al, 1993; Jones and Suh, 2000; Yi and La, 2004). Transaction-specific satisfaction has been identified to be customers' evaluation of his/her experience and reactions to a particular service encounter (Cronin and Taylor, 1992; Boshoff and Gray, 2004). Cumulative satisfaction, on the other hand refers to the customers' overall evaluation of the consumption experience to date (Johnson, Anderson and Fornell, 1995). In spite of its strategic importance, there is little empirical research linking satisfaction to repurchase behaviour in services, including special events (Baker and Crompton, 2000; Gremler and Brown, 1999; Lovelock, 2000; Oliva, Oliver, and MacMillan, 1992; Oppermann, 1998). However, two studies were identified in the consumer goods context, viz., those by Homburg and Giering (2001) and Mittal and Kamakura (2001).

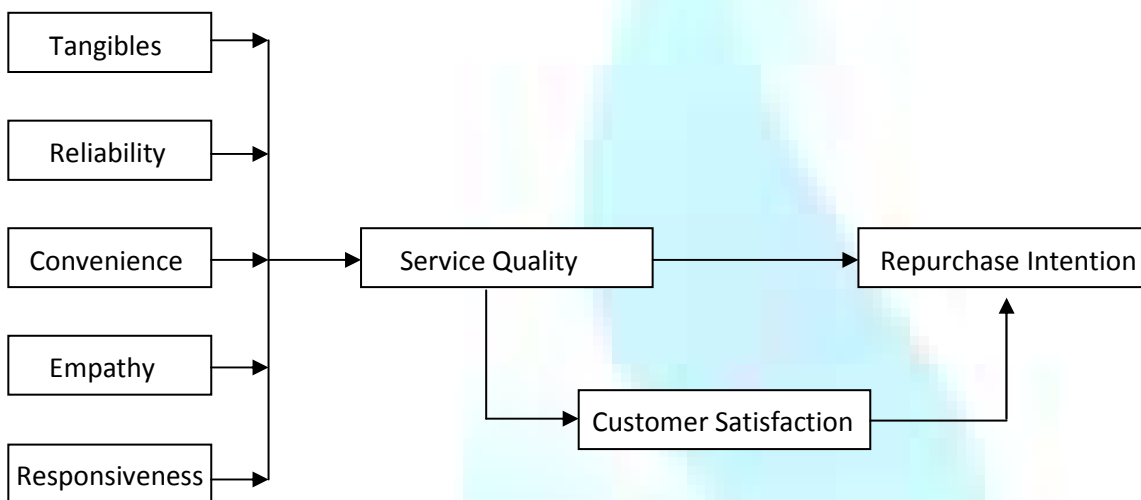
A series of studies were made to investigate the link between customer satisfaction and retention by utilizing the moderating variable – repurchase intention (Bitner, 1990; Oliver, 1980; Oliver & Bearden, 1985; Oliver and Swan, 1989). In a study made by Henning-Thurau and Klee (1997) relationship quality has been introduced as a three dimensional variable that incorporates customers' perceived service quality, the customers trust and his or her relationship commitment. Stimulating repurchase intention in customers by enhancing perceived service quality has financial justification too. There has been a number of studies indicating that acquiring a new customer is always expensive than to retain an existing customer (Ennew and Binks, 1996; Hormozi and Giles, 2004). A number of researchers have also tried to establish a link between service quality and customer behavioural intentions (Choi et al, 2004, Brady et al, 2001, 2005). Findings were given by Chen (2008), who concluded that provision of better services and satisfaction of customers with the services increased future usage intentions of

customers. Customer loyalty is dependent on the quality of service offered (Cöner and Güngör, 2002). Findings given by Lai (2004) showed that there is a significantly positive relationship between the quality of service offered and customer satisfaction, as well as with future purchase intentions of customers. Loyal customers of an organization are more interested to be customers of the same service provider in the future and as such, recommend others to use the same service in the future (Barnes, 1997). Brown and Gulycz (2001) consider the satisfaction of customers as an important tool to retain customers in the future and with positive repurchase intentions. Studies have placed considerable importance on the impact of service quality in determining repeat purchase and customer loyalty (Jones and Farquhar, 2003). Ranaweera and Prabhu (2003) studied the effects of customer satisfaction on customer retention and found the relationship to be strong and positive. Levels of customer satisfaction will have an impact on repurchase intentions (Rust and Zahorik, 1993; Taylor and baker, 1994; Patterson and Spreng, 1997; Bolton, 1998; Hellier et al, 2003). A study made by Ravald and Gronroos (1996) revealed that customer satisfaction is a better predictor of intentions to repurchase than service quality. Literature also support customer satisfaction as a reliable predictor of repurchase intentions (Novatorov and Crompton, 2002; Tian-Cole et al, 2002; Yoo, Cho and Chon, 2003).

CONCEPTUAL FRAMEWORK

A conceptual framework (Fig.1) has been proposed for the study which was required to be examined to assess the relational strength of the constructs and predictive capabilities of the variables such as service quality, customer satisfaction and repurchase intention.

FIG. 1: CONCEPTUAL FRAMEWORK



METHODOLOGY

The study was conducted on ten selected branches of State bank of India at Kolkata. A complete list of the SBI bank branches for Kolkata was obtained from the website (<http://www.sbi.co.in>, accessed on 12-09-2007). The branches thus obtained were arranged alphabetically. The primary filter that was applied to screen branches was the mandatory presence of three service features: (i) already installed CBS, (ii) already offered ATM services and (iii) activated and already offered Internet enabled banking services (i-banking). Every fifth branch was picked up for the study from the sub-list (which was also arranged alphabetically) thus prepared by applying the filtration technique. A self-administered structured questionnaire was used as primary survey instrument. The SERVQUAL instrument developed by Parasuraman, Zeithaml and Berry (1985) offers the most reliable tool to measure the difference-score with regard to perception and expectation scores of service quality and was used with a 7 point Likert scale fitting. The data obtained (expectation scores) from the respondents (customers) via the structured questionnaire using the SERVQUAL instrument was put to Exploratory Factor Analysis (EFA) using principal axis factoring procedure. The analysis was constrained a priori to five factors and each scale was rotated orthogonally through the VARIMAX process with an objective to reduce data and to study the factor loadings/cross-loadings in various components. The objective to carry out the EFA is to identify whether items of SERVQUAL already grouped by the PZB study can be regrouped under a separate nomenclature on the basis of the factor loadings/cross-loadings as per the rotated component matrix obtained thereof. On the basis of the factor loadings and cross loadings five dimensions were identified namely tangibles (4 factors), reliability (5 factors), convenience (6 factors), empathy (4 factors) and responsiveness (3 factors). One of the original dimensions of SERVQUAL namely 'assurance' was not found to be significant enough and part of its factors were loaded in 'empathy' and 'responsiveness' dimensions. Cronbach's α has been obtained to test the reliability of the data and Kaiser-Meyer-Olin (KMO) for sample adequacy and Barlett's Sphericity Test has been conducted. Single-item approach was adopted for the satisfaction and repurchase intention construct with a seven point Likert scale. Random sampling technique was used to collect primary data. A total of 1000 questionnaire were distributed amongst every 5th customer coming out of the bank premise out of which 639 were received back. Upon scrutinization, 516 usable responses were generated.

DATA ANALYSIS AND INTERPRETATIONS

SPSS 16 was used to compute and analyze the data. The service quality score (PSQ) was obtained by calculating the mean weighted SERVQUAL score which computed the difference of perception (P) and expectation (E) score of each and every individual across the 22 factor scale of modified SERVQUAL instrument. The mean of the difference (P-E) was obtained for each and every individual that was taken as perceived service quality (PSQ) for that individual. To get an estimation of customer satisfaction a 7 point Likert scale was used with '1' being 'highly dissatisfied' and '7' being highly satisfied. Bivariate correlation was performed to assess the relationship between the three major variables namely service quality (PSQ), customer satisfaction (CUSTSAT) and repurchase intention (REPURINT). The Pearson correlation exhibited in Table-1 showed that a strong and positive intercorrelation exist between the major variables. Service quality (PSQ) showed a strong and positive correlation with customer satisfaction (CUSTSAT) ($r=.593^{**}$, $p<.001$) and repurchase intention (REPURINT) ($r=.349^{**}$, $p<.001$). Repurchase intention (REPURINT) exhibited a strong and positive correlation with customer satisfaction (CUSTSAT) ($r=.444^{**}$, $p<.001$). Pearson correlation coefficient exhibited in Table-2 suggested that repurchase intention (REPURINT) is strongly and positively correlated with reliability ($r=.906^{**}$, $p<.001$), convenience ($r=.521^{**}$, $p<.001$) and responsiveness ($r=.395$, $p<.001$). Repurchase intention showed moderate and positive correlation with the empathy dimension empathy ($r=.147^*$, $p=.050$). With tangible dimension of service quality no significant relationship is found with the repurchase intention.

TABLE - 1: INTER-CORRELATION BETWEEN THE THREE MAJOR VARIABLES

		PSQ	CUSTSAT	REPURINT
PSQ	Pearson Correlation	1.000	.593**	.349**
	Sig. (2-tailed)		.000	.000
	N	516.000	516	516
CUSTSAT	Pearson Correlation	.593**	1.000	.444**
	Sig. (2-tailed)	.000		.000
	N	516	516.000	516
REPURINT	Pearson Correlation	.349**	.444**	1.000
	Sig. (2-tailed)	.000	.000	
	N	516	516	516.000

** Correlation significant at 0.01 levels (2-tailed)

TABLE - 2: CORRELATION BETWEEN SERVICE QUALITY DIMENSIONS AND REPURCHASE INTENTION

		TAN	RELIAB	COVEN	EMP	RESP	REPURINT
TAN	Pearson Correlation	1.000	.115	.219**	.228**	.268**	.082
	Sig. (2-tailed)		.126	.003	.002	.000	.276
	N	516	516	516	516	516	516
RELIAB	Pearson Correlation	.115	1.000	-.034	-.127	.464**	.906**
	Sig. (2-tailed)	.126		.657	.091	.000	.000
	N	516	516	516	516	516	516
COVEN	Pearson Correlation	.219**	-.034	1.000	.314**	.681**	.521**
	Sig. (2-tailed)	.003	.657		.000	.000	.000
	N	516	516	516	516	516	516
EMP	Pearson Correlation	.228**	-.127	.314**	1.000	.608**	.147*
	Sig. (2-tailed)	.002	.091	.000		.000	.050
	N	516	516	516	516	516	516
RESP	Pearson Correlation	.268**	.464**	.681**	.608**	1.000	.395**
	Sig. (2-tailed)	.000	.000	.000	.000		.000
	N	516	516	516	516	516	516
REPURINT	Pearson Correlation	.082	.906**	.521**	.147*	.395**	1.000
	Sig. (2-tailed)	.276	.000	.000	.050	.000	
	N	516	516	516	516	516	516

** Correlation significant at 0.01 levels (2-tailed), * Correlation significant at 0.05 level (2-tailed)

To understand the predictive capability of service quality and customer satisfaction to predict repurchase intention of the customers, Regression Analysis was conducted. The model summary (Table-3) exhibited R=.415 which showed the existence of 41.5% relationship between service quality & customer satisfaction and repurchase intention. Adjusted R square (R²) (.169) showed that service quality and customer satisfaction together explained 16.9% variation in repurchase intention. The results of ANOVA (Table-4) established that the variation showed by service quality and customer satisfaction was significant at 1% level (f=53.455, p<.001). The standardised regression coefficient results (Table-5) established that both service quality (PSQ) (β=.719, t=19.044, p<.001) and customer satisfaction (CUSTSAT) (β=.415, t=10.324, p<.001) have statistical significance and are positively correlated to repurchase intention (REPURINT) of the customers.

TABLE - 3: MODEL SUMMARY^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.415 ^a	.172	.169	.43717	.172	53.455	2	513	.000

a. Predictors: (Constant) CUSTSAT, PSQ

b. Dependent variable: REPURINT

CUSTSAT: Customer Satisfaction, PSQ: Perceived Service Quality, REPURINT: Repurchase Intention

TABLE-4: ANOVA^b

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	20.432	2	10.216	53.455	.000 ^a
	Residual	98.041	513	.191		
	Total	118.473	515			

a. Predictors: (Constant) CUSTSAT, PSQ

b. Dependent variable: REPURINT

TABLE - 5: COEFFICIENTS^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.553	.156		22.817	.000
	PSQ	.654	.089	.719	19.044	.000
	CUSTSAT	.320	.031	.415	10.324	.000

a. Dependent variable: REPURINT

The regression equation to predict 'repurchase intention' of the customer can be represented as:

$$REPURINT = aX_1 + bX_2 + k$$

Where, REPURINT – repurchase intention of the customer

X₁- Service quality score, (PSQ)

X₂- Customer Satisfaction Score (CUSTSAT)

k= regression constant

On the basis of the results of the regression analysis, the equation obtained was as follows:

$$REPURINT = (.654 * X_1) + (.320 * X_2) + (3.553)$$

By replacing the values for X_1 and X_2 for an individual customer, the repurchase intention of that individual can be predicted

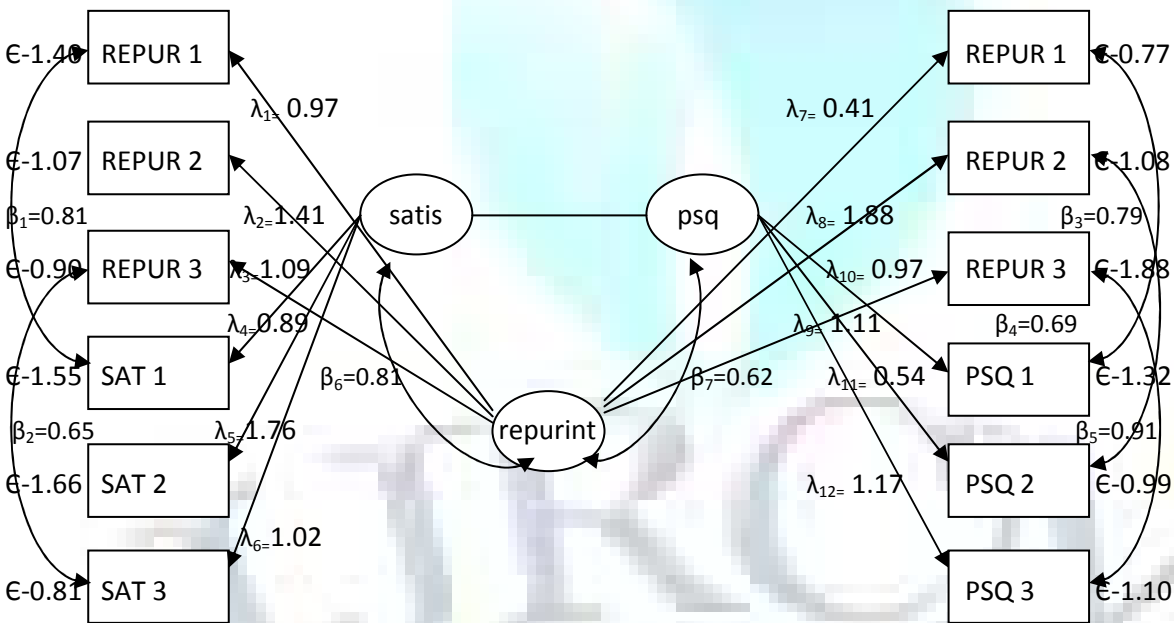
MODEL DEVELOPMENT

Structural Equation Modeling (SEM), a multivariate statistical analysis technique, which combines factor analysis with multiple regression analysis and explores the structural relationship between measured/observed variables and latent constructs (Eboli L. et al, 2007), has been used to analyse structural relationships between the model constructs for the study. Confirmatory factor analysis (CFA) was performed to fit two latent variables [Service quality (PSQ) and Customer satisfaction (CUSTSAT)] to the observed data using LISREL 8.80 and the standardized version of the model is presented in Figure 2. The results of the confirmatory factor analysis justified the dimensionality, convergent and discriminant validity and provided a reasonable fit for the model to the data on the basis of a number of fit statistics which are appended in Table 6. The probability value of Chi-square is less than the conventional 0.05 level (P=0.00041) indicating a relative fit of the models to the data rather than an absolute fit. The values of the goodness of fit indices are significantly low supporting the quality of the model fit to the data.

TABLE-6: GOODNESS OF FIT INDICES

Indices	Values
Degrees of Freedom	97
Minimum fit function Chi-Square	761.265 (P = 0.00041)
Goodness of Fit Index (GFI)	0.91
Adjusted Goodness of Fit Index (AGFI)	0.86
Parsimony Goodness of Fit Index (PGFI)	0.41
Comparative Fit Index (CFI)	0.79
Incremental Fit Index (IFI)	0.91
Relative Fit Index (RFI)	0.61
Normed Fit Index (NFI)	0.60
Non-Normed Fit Index (NNFI)	0.57
Standardized RMR	0.27
Root Mean Square Error of Approximation (RMSEA)	0.031
Expected Cross-Validation Index (ECVI)	0.52

FIG.2: PATH DIAGRAM SHOWING RELATIONSHIP BETWEEN THE MAJOR VARIABLES



The path diagram for the conceptual framework is depicted in Figure-3 where the structural relationship between service quality dimensions (tangibles, reliability, convenience, empathy and responsiveness), service quality, customer satisfaction and repurchase intention may be observed. The model stands good on the ground of a number of goodness of fit indices showed in Table-7.

FIG.3 - PATH DIAGRAM JUSTIFYING THE PROPOSED MODEL

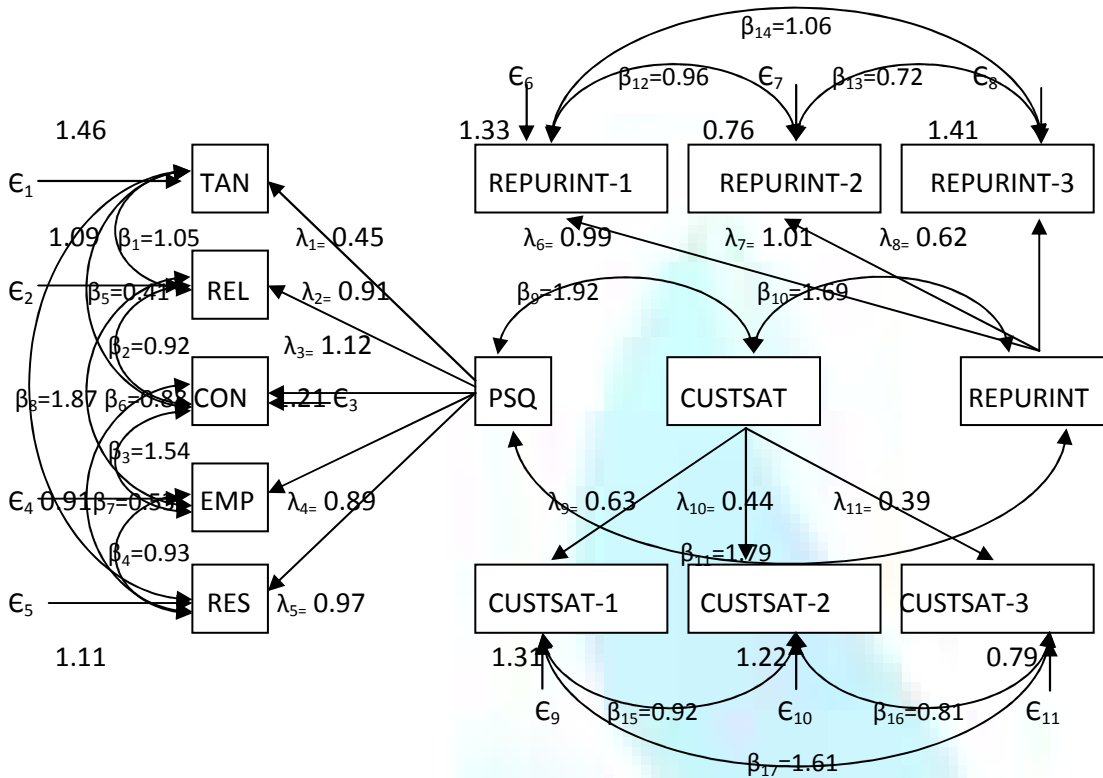


TABLE-7: GOODNESS OF FIT INDICES

Indices	Values
Degrees of Freedom	138
Minimum fit function Chi-Square	1134.523 (P=0.00200)
Goodness of Fit Index (GFI)	0.95
Adjusted Goodness of Fit Index (AGFI)	0.88
Parsimony Goodness of Fit Index (PGFI)	0.57
Comparative Fit Index (CFI)	0.86
Incremental Fit Index (IFI)	0.87
Relative Fit Index (RFI)	0.69
Normed Fit Index (NFI)	0.54
Non-Normed Fit Index (NNFI)	0.51
Standardized RMR	0.18
Root Mean Square Error of Approximation (RMSEA)	0.029
Expected Cross-Validation Index (ECVI)	0.31

CONCLUSION

The study revealed that repurchase intention of customers is positively influenced by the perceived level of service quality and customer satisfaction. Intention to purchase can also be predicted on the basis of perceived service quality and customer satisfaction. The study has significant marketing implications for State bank of India. In order to ensure long-term customer loyalty by inducing repeat purchase behaviour, SBI should focus on the service quality dimensions, particularly reliability, convenience and responsiveness which has exhibited strong and positive inter-correlation. With Indian banking sector rapidly changing and so are its customers, in near future other service quality dimensions may emerge as strong influencers of customer satisfaction and hence inducing repurchase intention. Therefore SBI may initiate a customer contact programme to realize the changing expectations and perceptions of customers with regard to banking service and the serve quality offered by SBI.

The study has its own limitations. First it was restricted within the territorial limits of Kolkata. Secondly, service quality and customer satisfaction were considered as antecedents

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AN EMPIRICAL RESEARCH ON MOBILE USERS INTENTION AND BEHAVIOUR TOWARDS MOBILE ENTERTAINMENT SERVICES IN INDIA BASED ON THEORY OF PLANNED BEHAVIOUR MODEL

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ABSTRACT

Mobile Entertainment is combination of entertainments like games, music, videos, chatting and telecommunication which has created a wide market in India. This study is aimed at analyzing Mobile users' intention and behaviour towards mobile entertainment services based on the Theory of Planned Behaviour (TPB) model. Structural Equation Model (SEM) is used as the main statistical procedure for data analysis. The results of the study confirmed that the TPB model is viable in predicting mobile user acceptance of mobile entertainment services. The findings have revealed that attitude towards mobile entertainment has the highest direct impact on consumer Intention and Behaviour towards mobile entertainment services. Perceived Behaviour Control has moderate impact on consumer Intention and Behaviour towards mobile entertainment services and Subjective norm has very less impact on consumer Intention and Behaviour towards mobile entertainment services.

KEYWORDS

Mobile Entertainment Services, Theory of Planned Behaviour, Structural Equation Model, Attitude, Subjective norm, Perceived Behaviour Control, Intention , Behaviour.

INTRODUCTION

Mobile Entertainment Forum (MEF) stated that Mobile Entertainment is created as a combination of entertainment and telecommunication. Telecommunication and Entertainment industries have different nature of operations and different objectives to serve its customers. MGAIN (2003) assumes mobile entertainment includes any leisure activity undertaken via a personal technology, which is, or has the potential to be, networked and facilitates transfer of data over geographic distance either on the move or at a variety of discrete locations.

MOBILE ENTERTAINMENT FRAMEWORK

To understand mobile entertainment, three different segments are suggested, each segment suggests a specific set of theories. Segment 1 consists of intersection between mobile entertainment, telecommunication network and mobile service provider. In other words, mobile entertainment services in segment 1 are receiving from service provider through wireless network connection like live cricket updates, news updates from service provider. A mobile user connects to the Internet via his WAP-enabled mobile phone, searches for a particular ring tone and downloads it onto his mobile phone. Segment 2 covers mobile entertainment services which utilize wireless telecommunication networks, but do not incur a cost upon usage and do not interact with service providers. For example, user can transfer a song or video through Bluetooth to his friend or one may play multiplayer mobile games with friends via Bluetooth. Segment 3 involves mobile entertainment which does not require wireless connection and transaction of an economic value. For example, one may play preinstalled single player games on mobile phone or Mobile user can hear music which is preloaded in the mobile phone.

TRANSMISSION OF MOBILE ENTERTAINMENT

Mobile entertainment services has transformed from mono-ring tones in the late nineties to streaming audio and video, multi player games and mobile gambling with high speed networks operating upon advance technological handsets.

According to Portio Research report mobile entertainment services has generated worldwide revenue of \$24 billion by 2008 and is expected to create revenue of \$47.2 billion by the end of 2013. Mobile Entertainment services mostly consist of Mobile music, Mobile games and Mobile video services. Mobile music is considered to take the major role in mobile entertainment with ring tones, ringbacktones, streaming audio, full track downloads and FM radio listening in mobile phone.

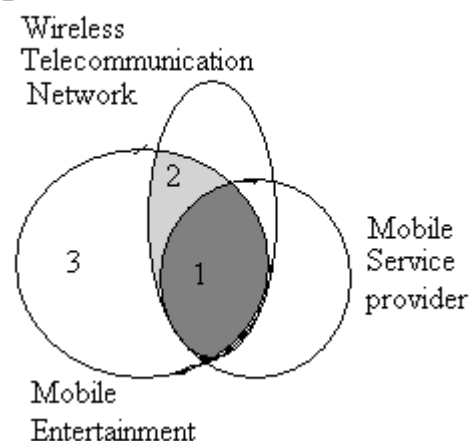
Nokia launched "Snake" games in mobile phones in year the 1997, since then many games have come into mobile phones. The latest games are supported by Java, BREW, SMS based and browser based games. Mobile games worldwide revenue is expected to be \$9.8 billion by the end of 2013. Mobile video services are expected to reach its maximum popularity by the end of 2013 as advanced technology iPhones and 3G technology have come into existence in India.

According to a telecom research company, an average Indian mobile user spending time on voice call has dropped from 505 minutes in June 2008 to 401 minutes in June 2010, but surprisingly the same user is spending more time on their mobile phones by listening music or playing games or browsing internet on phone.

Despite its rapid modernization, many of India's 750,000 villages remain isolated except for the mobile phone reception that now covers almost the entire country after a decade of rapid expansion by Mobile operators. So in villages that don't receive any FM radio stations, people have begun calling a number that has a recording of film tunes and listening to it on their headsets. This shows the transmission of mobile entertainment services in India.

To analyze mobile entertainment services acceptance in India the Theory of planned Behaviour (TPB) is suitable as it is suggested to be an effective model in predicting technology adoption among consumer (Hsu and Chiu 2004). The TPB is an effective predictive model in fields that lead to a certain degree of behavioral change from individuals. Even though research in technology adoption has used the TPB extensively, the literature contains little regarding its applicability to mobile entertainment services adoption. However, validating the TPB model in the context of mobile users perceived entertainment could help

Figure 1: Mobile Entertainment Framework



academics and practitioners better understand the social and behavioural antecedents of user's acceptance. The Structure equation modeling is used to test the validity of using the TPB in this context.

LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

The Theory of Reasoned Action (TRA) provides a framework to study attitudes toward behaviors. According to the theory, the most important determinant of a person's behavior is behavior intent. The individual's intention to perform a behavior is a combination of attitude toward performing the behavior and subjective norm. The individual's attitude toward the behavior includes; Behavioral belief, evaluations of behavioral outcome, subjective norm and the motivation to comply.

If a person perceives that the outcome from performing a behavior is positive, he will have a positive attitude towards performing that behavior. If relevant others see performing the behavior as positive and the individual is motivated to meet the expectations of relevant others, then a positive subjective norm is expected. Attitudes and subjective norm are measured on scales like the Likert Scale using phrases or terms such as like/unlike, good/bad, and agree/disagree. The intent to perform a behavior depends upon the product of the measures of attitude and subjective norm.

TRA works most successfully when applied to behaviors that are under a person's volitional control. If behaviors are not fully under volitional control, even though a person may be highly motivated by her own attitudes and subjective norm, she may not actually perform the behavior due to intervening environmental conditions. The Theory of Planned Behavior (TPB) was developed to predict behaviors in which individuals have incomplete volitional control.

The major difference between TRA and TPB is the addition of a third determinant of behavioral intention, perceived behavioral control. Perceived Behavioral control is determined by two factors; Control Beliefs and Perceived Power. Perceived behavioral control indicates that a person's motivation is influenced by how difficult the behaviors are perceived to be, as well as the perception of how successfully the individual can, or cannot, perform the activity. If a person holds strong control beliefs about the existence of factors that will facilitate a behavior, then the individual will have high perceived control over a behavior. Conversely, the person will have a low perception of control if she holds strong control beliefs that impede the behavior. This perception can reflect past experiences, anticipation of upcoming circumstances, and the attitudes of the influential norms that surround the individual (Mackenzie & Jurs, 1993). According to the TPB behavioural intention is a function of three areas: Attitude, Subjective Norms and Perceived Behavioural Control (Ajzen 1991).

OBJECTIVES

The main objectives of this empirical research is to study

1. The mobile users' attitude towards mobile entertainment services and its impact on their intention and behaviour to use mobile entertainment services.
2. The mobile users' Subjective norms towards mobile entertainment services and its impact on their intention and behaviour to use mobile entertainment services.
3. The mobile users' perceived behaviour control towards mobile entertainment services and its impact on their intention and behaviour to use mobile entertainment services.

The following hypothesis are formulated to study the mobile users' intention and behaviour towards mobile entertainment services

Hypothesis (H1): Mobile users' attitude towards mobile entertainment services has a direct positive impact on their intention to use mobile entertainment services.

Hypothesis (H2): Mobile users' subjective norm towards mobile entertainment services has a direct positive impact on their intention to use mobile entertainment services.

Hypothesis (H3): Mobile users' perceived behaviour control towards mobile entertainment services has a direct positive impact on their intention to use mobile entertainment services.

Hypothesis (H4): Mobile users' attitude towards mobile entertainment services has a direct positive impact on their behaviour to use mobile entertainment services.

Hypothesis (H5): Mobile users' subjective norm towards mobile entertainment services has a direct positive impact on their behaviour to use mobile entertainment services.

Hypothesis (H6): Mobile users' perceived behaviour control towards mobile entertainment services has a direct positive impact on their behaviour to use mobile entertainment services.

Hypothesis (H7): Mobile users' intention towards mobile entertainment service has a direct positive impact on their behaviour to use mobile entertainment services.

RESEARCH METHODOLOGY

Structural equation modeling is used as the main statistical technique and data was collected through questionnaire survey. The questions in the survey are self created. 5 point Likert scale was used (1 strongly disagree, 2 disagree, 3 neither agree or disagree, 4 agree and 5 strongly agree) to measure affects of consumer Attitude, Subjective Norm and Perceived Behaviour Control on Intention and Consumer Behaviour towards Mobile Entertainment. The research questions consisted of 12 questions. The first 2 questions are related to demographic variables age and gender. The remaining 10 questions are related to investigate mobile user's attitude, subjective norm, perceived behavioural control, Intention and Behaviour towards mobile entertainment. The questionnaire was pre-tested on 25 respondents to test its consistence and reliability of questions to its research objective.

SAMPLING

A total of 1000 questionnaire forms were distributed. All the respondents are mobile phone users for at least one year and selected based on convenience sampling method. Respondents are clearly explained about the objective and purpose of the research article before distribution of the questionnaire. A total of 942 questionnaires were analyzed for the research as remaining questionnaires were incomplete. Majority respondents are males (66%).

TABLE1: RESPONDENTS' PROFILE

Variable	Frequency	%	Variable	Frequency	%		
Gender	Male	623	66.13	Age	≤ 20 years	124	13.2
	Female	319	33.87		20 – 40 years	647	68.6
					≥ 40 years	171	18.2

DATA ANALYSIS

The data analysis was conducted in a three-stage process. First, reliability tests were performed. Upon satisfactory results, confirmatory factor analysis (CFA) with SPSS Statistics 17.0 was used to analysis the convergent, concurrent and discriminant validity of the model. Once the model was validated, SPSS Amos 18.0 was used to test the overall fit of the structural model and to estimate the relationships between the independent variables and the dependent variable so as to accept or reject the hypothesis.

RELIABILITY TESTS

The reliability of 10 items in the questionnaire is tested with Cronbachs' alpha (Cronbach, 1951). Cronbach alpha reliability coefficient is 0.731 which is exceeding the suggested level of 0.70. It suggests that the questionnaire is having reliability and can be used for further analysis.

CONFIRMATORY FACTOR ANALYSIS

The Kaiser-Meyer-Okin (KMO) and Bartlett's Test is used to test suitability of data for factor analysis. KMO value is 0.71 exceeding the recommended value of 0.60 while Bartlett's Test of sphericity reached statistical significance (Chi-square 347.609, df 45 and Sig 0.00) which signifies the data is good for conducting factor analysis. The 10 items were subjected to principal component analysis (PCA) with varimax rotation to test the suitability of data for factor analysis. The PCA revealed the presence of 5 components with Eigen values the exceeding 1, explaining 16.467, 15.791, 14.781, 13.399 and 11.241 total percentage of variance is 71.679. These components correspond to five constructs in the TPB structural model - Attitude, Subjective Norm, Perceived Behavioural Control, Intention and Mobile users' behaviour towards Mobile Entertainment services. All factors loading of each item are above 0.50. The results of the principal component analysis can be viewed in table 2.

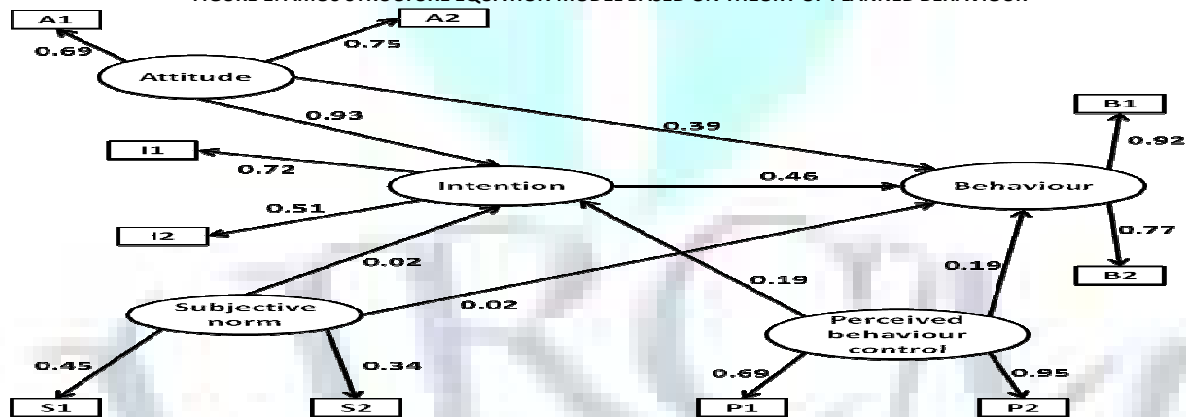
TABLE 2: DESCRIPTIVE STATISTICS FOR THE QUESTIONS IN THE SURVEY AND FACTORS ANALYSIS

Item No	Component	Mean	S.D	Factor Loads	Eigen Value	% variance
Attitude						
A1	I like to have fun with my mobile phone	3.50	1.083	0.675	1.647	16.467
A2	Using mobile phone is not good for health. In my opinion we must stop using mobile phone at least for entertainment purpose.	2.53	1.230	0.738		
Subjective Norm						
S1	Many people are of the opinion, not to capture their photos or videos from mobile phone without their permission	4.13	1.042	0.841	1.579	15.791
S2	My friend suggested me to avoid hearing mobile phone music through ear phones as it may damage the ear drum	3.98	0.962	0.840		
Perceived behavioural control						
P1	I can't stop hearing music from mobile phone as I am very much attached to it.	2.51	1.245	0.791	1.478	14.781
P2	I can't stop messaging to friends through mobile phone as I feel missing them if I don't SMS	3.21	1.395	0.825		
Intention						
I1	I believe with so many features of entertainment like games, music, videos, camera, internet access in mobile phone, it can rule the world of entertainment.	3.95	1.053	0.774	1.340	13.399
I2	It is very easy to capture pictures or video from cell phone and sharing with friends	4.26	0.634	0.813		
Mobile users' Behaviour						
B1	I generally subscribe for music, latest dialer tunes, cricket news etc from my cell phone service provider	3.04	1.295	0.816	1.124	11.241
B2	Recently, I have purchase mobile phone with latest technology for more features of audio and video clarity	3.33	1.430	0.794		
Total % of variance		71.679				

STRUCTURE EQUATION MODEL

SPSS Amos 18 software is used to perform confirmatory factor analysis using Structural Equation Model (SEM). Total number of variables in the model is 27, number of observed variables 10, number of unobserved variables 17. The data has no missing values. The model is over-identified, a preferable situation for SEM. According to the univariate and multivariate normality tests the data is not normally distributed. After the data was normalized, the Maximum likelihood (ML) estimation method is used. ML attempts to maximize the likelihood that obtained values of the criterion variable will be correctly predicted.

FIGURE 1: AMOS STRUCTURE EQUATION MODEL BASED ON THEORY OF PLANNED BEHAVIOUR



MODEL FIT

Based on Structure Equation Model using SPSS Amos 18 it is found that Chi-square(CMIN) = 68.459, degree of freedom(DF) = 29 and probability level = 0.100 which is evidence against the null hypothesis is not significant at the 0.05 level. CMIN/DF is called as the minimum discrepancy which is 2.36 Wheaton et al (1977) suggested that if the minimum discrepancy is less than 5 the model is reasonable fit.

Goodness of Fit Index (GFI) is 0.956 and Adjusted Goodness of Fit Index (AGFI) is 0.917 Normed Fit Index (NFI) is .904 and Comparative Fit Index (CFI) is 0.912 as this entire index are greater than 0.9 the model is fit (Garson 2006) and accepted. Root Mean Square Error of Approximation (RMSEA) is 0.042 based on various studies conducted by Bentler and Bonett (1980) it was suggested that if the Index value is greater than 0.9 and if RMSEA value is less than 0.05 it indicates model is fit and accepted.

FINDINGS

SPSS Amos Graphics has specified path-diagram in figure1 specifies the relationship between the observed and unobserved variable. The portion of the model that specifies how the unobserved variables are related to each other is called Structural model. In this present structural equation model Intention and Behaviour are the dependent variables and Attitude, Subjective Norm and Perceived behaviour control are independent variables. The regression weight estimates the relative importance between the variables. The estimate with largest value represents the most important dimension in terms of its impact on the dependent variable. The findings of the regression estimates weight are summarized in the following table. The hypothesis is accepted if the P value is less than 0.05.

TABLE 3: REGRESSION ESTIMATES

Hypothesis	Factor	Impact	Factor	Estimate	P.Value
1	Intention	<---	Attitude	0.930	0.000
2	Intention	<---	Subjective norm	0.015	0.062
3	Intention	<---	Perceived behaviour control	0.194	0.001
4	Behaviour	<---	Attitude	0.394	0.000
5	Behaviour	<---	Subjective norm	0.020	0.056
6	Behaviour	<---	Perceived behaviour control	0.186	0.000
7	Behaviour	<---	Intention	0.463	0.001

Hypothesis (H1): Mobile users' attitude towards mobile entertainment services has a direct high positive impact on their intention to use mobile entertainment services with regression estimate of 0.930 the hypothesis is accepted.

Hypothesis (H2): Mobile users' subjective norm towards mobile entertainment services has very low impact on their intention to use mobile entertainment services with regression estimate of 0.015 the hypothesis is not accepted.

Hypothesis (H3): Mobile users' perceived behaviour control towards mobile entertainment services has a less positive impact on their intention to use mobile entertainment services with regression estimate of 0.194 the hypothesis is accepted.

Hypothesis (H4): Mobile users' attitude towards mobile entertainment services has a direct positive impact on their behaviour to use mobile entertainment services with regression estimate weight 0.394 the hypothesis is accepted.

Hypothesis (H5): Mobile users' subjective norm towards mobile entertainment services has very low impact on their behaviour to use mobile entertainment services the regression weight is 0.020 the hypothesis is not accepted.

Hypothesis (H6): Mobile users' perceived behaviour control towards mobile entertainment services has a low positive impact on their behaviour to use mobile entertainment services the regression estimate weight is 0.186 the hypothesis is accepted.

Hypothesis (H7): Mobile users' intention towards mobile entertainment service has a direct positive impact on their behaviour to use mobile entertainment services with regression estimate weight of 0.463 the hypothesis is accepted.

DISCUSSION

The attitude towards Mobile Entertainment service has a positive and very strong impact on Intention to use Mobile Entertainment services and strong impact on Behaviour to use Mobile Entertainment services. Indians are spending most of their time with mobile phones and they find it is very important device in daily life, apart from talking they have perceived many other benefit from mobile phone like hearing music, playing games, SMS chatting, capturing videos or pictures etc which made this attitude strong for good intention to use mobile phone for entertainment and Behaviour to adopt it.

Subjective norm towards Mobile Entertainment service is having positive but very less impact on intention use mobile entertainment service and behaviour to use mobile entertainment services because mobile users never felt that using mobile phone for entertainment purpose is wrong and mostly young people are using mobile phone for entertainment purpose they have not taken society into consideration. Mobile users are feeling mobile is very convenient to use, Entertainment from mobile phone is at a less cost.

Perceived Behaviour Control towards mobile entertainment services has positive but moderate effect on Intention and Behaviour to use Mobile Entertainment services, because as many people are using it very frequently for entertainment and Mobile device & Mobile service providers are giving many features mobile phone. User has not found any reason to control their behaviour to use mobile phone for entertainment purpose. So, perceived behaviour control has less effect on both Intention and Behaviour to use mobile entertainment service.

CONCLUSION AND SUGGESTIONS

This empirical research used Theory of Planned Behaviour to predict mobile users' attitude, Subjective norms and perceived behaviour towards intention and behaviour to use mobile entertainment service has predicted that attitude has a strong impact on intention and behaviour to use mobile entertainment where as Perceived behaviour control has less impact on intention and behaviour to use mobile entertainment services and Subjective norms towards mobile entertainment service has no impact on intention and behaviour to use mobile entertainment services.

Despite of huge growth in mobile subscribers and mobile entertainment services in India, little research has investigated the factors influencing the use of these services and the findings of this study contribute to a better understanding of the antecedents of mobile entertainment services. In particular, the finding can help practitioners understand and focus on the factors that contribute most strongly towards the use of mobile entertainment services. The results showed a greater influence of attitude on intention and behaviour to use mobile entertainment services. The result of this study suggests that practitioners and academics should focus their efforts on this particular factor.

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RETENTION STRATEGY: THE MAJOR TRENDS THAT CARRIED OUT IN IT SECTOR

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ABSTRACT

Successful software development organizations recognize the importance of retaining their best talent and continuously look for creative ways to do so. Long gone are the days when you could hire a COBOL programmer and expect him or her to stay on board until retirement. Retaining key employees is important in any technical field. In addition to lost productivity while you look for a replacement candidate, there are intangible costs. The hyper-competitive Indian business environment is experiencing an intensifying fight for knowledge workers, the key to enhancement of productivity in which rests on designing ways and means. To retain the employee's key performers in the organization is to maintain the committee of ways and means. This becomes more pertinent in the IT industry; the primary companies of all the survey were collected from the NASSCOM National Association of Software and Service Companies (India.)

KEYWORDS

COBOL, IT industry, NASSCOM National Association of Software and Service Companies (India).

INTRODUCTION

High employee turnover, as a consequence of quick career advancement and multiple job opportunities, has come to be known as a negative "spill-over effect" of industrial growth (Sahu and Gupta, 1999). Apart from voluntary movement of workers during prosperity, downsizing done by the organizations. This referred to as a purposeful reduction in the size of an organizations workforce under periods of structural changes and recession, is a major dimension of employee turnover.

On the face of such large scale volatility of labour, today's employers prefer to have a stable, committed and yet flexible workforce, the employees in which are willing to learn and develop; employers also face the strategic problem of choosing incompetent staff for retrenchment. The cutting away of superfluous tissue. and quality staff for retention. Retaining a healthy team of committed and productive employees, therefore, is necessary to maintain corporate strategic advantage (Mak and Sockel, 2001). Hence organisations must design appropriate strategies to retain their quality employees. These strategies may involve dimensions ranging from lucrative compensation packages to involving employees in every sphere of the functioning of the organisation.

Retention strategy of any organisation may have the following dimensions:

- (i) Whom to Retain: Murty (2004) identifies three categories of employees-those who would need to be retained indefinitely; those who are critical to the organisation in the short run and those who are easily replaceable. Once such sets of employees are identified, any of the organization can easily customise its retention strategies in order to encourage organisational loyalty among employees.
- (ii) Why to Retain: It will become significantly more important in the years ahead to recognise the commitment of individuals to an organisation, as well as the organisation's need to create an environment in which one would be willing to stay (Harris, 2000 Abbassi and Hollman 2000) further indicate that when an organisation loses a critical employee, there is negative impact on innovation and major delays in delivery of services to customers, consequently affecting the profitability of the organisation. Hale (1998) studied recruitment costs to be 50 to 60 per cent of an employee's first year's salary and up to 100 per cent for certain specialised high-skill positions.
- (iii) How to Retain: The very first step towards effective retention is the acceptance of the reality that movement of employees is governed not only by the organisation, but also by the market. Fast moving markets require fast-moving organisations that are continually refreshed with new talent.

REVIEW OF LITERATURE

It has been found to be related to turnover and performance of Information Systems workers (Igbaria and Guimaraes, 1993). Blankertz and Robinson (1996) have demonstrated that employees with high job satisfaction are highly motivated and have little desire to leave their jobs. Productivity of employees and retention of such productive employees can be linked to factors like competitive pay and benefits, good working conditions, advancement and growth opportunities, etc. Productivity of workers can thus be attributed as a function of how well such workers are motivated. Such employees, as these satisfied employees would be less likely to lookfor another job. However, smaller companies consider attracting the best talent is a lost cause for them because they can not offer the competitive compensation packages that their big brothers offer (Dearc, 2004).

UK chattered institute of personnel development (CIPD) suggest that the important employees were understandingof their rates of labour turnover how they affect the organization effectiveness (CIPD2004)

In high turn over industries, a great deal in employee's turnover consist of people resigning and termination in few months in labour turn over. The cost of recruitments and labour turnover per individual become much greater when new staff leave after a short period of time (CIPD2004)

Thomas 2002The institutional attitudes, culture and practices (institutional habitus), which are not necessarily supportive; affect the extent to which students feel like they belong can be crucial.

Persistence is related to student satisfaction, which is integrally linked with preparedness for higher education and lack of realistic expectations. Choice of institution and programme of study is often crucial. (Davies 1999; National Audit Office 2002; Tresman 2002) (Gordon et al 2002)

Working-class students have less peer support to draw on and there is some correlation between class and first-year grades and persistence, especially where family problems intervene. (Davies & Rudden 2000; Yorke 2001). Yorke studied the impact of age and class and noted that there was a strong correlation between these variables and non-completion.

Some working class students become integrated and perform better when living in residential halls in the first year. Some first generation students make assumptions about higher education, not least the support they will get, which are unmet. NATFHE 2000

Despite performing at least as well as younger students, mature students are likely to feel more socially isolated and have financial and family concerns that impact on their first-year performance and persistence. Access to teaching staff and feedback on progress are important motivators for first-year mature students. Although there are differences in ethnic group performance and persistence, this is not an issue of race *per se*. Nelson, Bickel & Post (2000) Students who participate in support activities benefit, the availability of student counselling services it is suggested, has some impact on institutional retention rates. Research from Middlesex University noted comparing those who had received counselling – with a withdrawal rate of 2% in 1999 – with the rate for those who had not (11.7%) and comparative figures of 5% and 14% for a follow-up study. (Egert 1999)

Finance is not as big a factor in student persistence as is often presumed. It is rarely the only reason for withdrawal. Many students undertake paid work but there is little evidence to suggest that moderate amounts of part-time working adversely affect first-year performance. (NAO 2007)

OBJECTIVES OF THE PAPER

The purpose of the study is to examine the different strategies of retention and criteria for retrenchment of IT professionals. The questions that are being sought to be answered are:

1. To find out the reason for job migration for the IT professionals
2. To analyse the retention benefits offered by IT companies for their employees

METHODOLOGY

The population for the study was chosen to be IT companies in Chennai registration with NASSCOM National Association of Software and Service Companies (India) The primary activity of all the companies surveyed is software development. Other activities range from software consultancy to web-based solutions (including web-designing and web hosting Making a Web site available on the Internet. Given the relative youth of the Indian IT industry, it is not easy to obtain time series data on growth of establishments in the industry. Majority of the respondents in our sample have reported their date of establishment to be post-2010. The sample size taken for the study is 450. The mean age of the samples was 27 years and average length of service in IT industry was 18.30 months. Of the 300 software professionals, 150 were at the lower level of the hierarchy (namely Project Trainees, Software Developers, Web Designers and Programmers), while the rest were at the middle level (namely Senior Programmers, Senior System Analysts, Senior Consultants and Software development managers)

TOOLS OF THE STUDY

In order to ascertain the various aspects of retention strategies in IT industry, two sets of questionnaires were designed with a mix of open and closed ended questions. The idea behind was to gauge the designing of and consequent repercussions of retention strategies of IT companies. As such the two sets were targeted for HR Managers on one hand and IT professionals on the other. Information on demographic characteristics (age, sex, designation, work experience and number of organisations worked with before) was also sought. The sample were electronically mailed, sending a detailed explanation of the purpose of the study and a copy of the questionnaire for their initial approval. Of all the companies which responded, some were personally visited and in such cases the questionnaire was administered on a face to face basis. Respondent professionals, on being convinced that the purpose of the survey was purely academic in nature, were given the option of answering the questions verbally, or filling up the questionnaire by themselves in presence of the surveyor.

FREQUENCY CLUSTERS OF REWARDS AND REMUNERATIONS

Clusters	No. of Respondents	Frequency in %
1	78	17.31
2	190	42.31
3	182	40.38
	N = 450	100.00

Source: Computer Data

Table clearly indicates that 182 respondents (40.38%) feel that the Rewards and remunerations payable to them are excellent in their organisation. A total of 190 employees (42.31%) feel that the amount of pay in different organizations gives them moderate satisfaction. However, the remaining 78 respondents (17.31%) expressed that the amount payable as rewards and remunerations to the workers needs revision.

The discriminant analysis is applied on the clusters of Work assessment with the following independent variables:

- Job requirement
- Job attachment
- Job informations

EQUALITY OF GROUP MEANS OF SUB-FACTORS OF WORK ASSESSMENT

Sub-factors	Wilks Lambda	F	df 1	df 2	Sig.
Job requirement	0.670	075.960	2	447	0.000
Job attachment	0.472	172.684	2	447	0.000
Job informations	0.369	263.897	2	447	0.000

Source: Computer Data

It is evident that all the three sub-factors of Work assessment differ significantly with respect to strong, moderate and weak clusters.

CLUSTER CENTRES OF SUB-FACTORS OF INTER-PERSONAL RELATIONSHIP

Sub-factors	Clusters		
	1	2	3
Relations with staff	3.19	4.06	4.38
Communication	2.95	3.76	4.26
Feeling of recognition	3.05	3.49	4.32

Source: Computer Data

It is evident that 450 respondents of different organizations are grouped into 3 clusters namely strong cluster, moderate cluster and weak cluster on the basis of the mean score values of the sub-factors considered in this analysis. The mean values of the Inter-personal relationship as a determinant of job satisfaction is comparatively higher in the third cluster and hence this cluster is considered as the strong cluster followed by the second cluster as moderate and the first cluster as weak cluster.

PREDOMINATE FACTORS OF RETENTION RATE IN IT SECTORS

Sub-factors	Clusters		
	1	2	3
Job requirement	3.95	4.05	4.31
Relations with staff	3.26	4.01	4.31
Organisation and management	2.80	3.63	4.15
Reasonable pay	3.05	3.72	4.39
Working conditions	3.05	3.86	4.32
Innovative learning	3.33	3.68	4.16
Empowerment	3.02	3.68	4.04
Grievances handling procedure	2.66	3.25	3.63
Opportunity for growth	2.81	3.65	3.98
Living conditions and finance	3.57	3.82	4.18

Source: Computered Data

It is evident that the total sample of 450 respondents is grouped into three clusters namely strong cluster, moderate cluster and weak cluster. The mean value scores of the predominant sub-factors are comparatively higher in the third cluster and as a result, the third cluster is considered as the strong cluster followed by the second cluster as moderate and the third as weak cluster.

ASSOCIATION BETWEEN AGE AND CLUSTERS OF PREDOMINANT FACTORS

Age (Years)	Clusters			Total
	1	2	3	
Below 30	12	20	33	65
30-35	23	038	28028	89
35-40	23	039	04040	102010
40-45	19	40	53	112
Above 45	04	27027	51051	8281
Total	81	164	205	450

Source: Computered Data

It is evident that the maximum number of women employees in the age group of 30-35 years is distributed in the second cluster which is the moderate cluster. On the other hand, the maximum number of women employees in the other age groups is distributed in the strong cluster.

CORRELATION BETWEEN AWARDS, MERIT AND COMMENDATION CERTIFICATES AND PREDOMINANT FACTORS OF JOB RETENTION

Predominant factors of job satisfaction	Correlation co-efficient	Sig. (2-tailed)	N
Awards	1		450
Job requirement	119*	0.036	450
Job attachment	154**	0.007	450
Job informations	-0.076	0.182	450
Relations with staff	-0.012	0.833	450
Communication	-0.091	0.110	450
Feeling of recognition	- 0.030	0.598	450
Company and management	-0.046	0.417	450
Reasonable pay	-0.098	0.083	450
Competency	- 0.020	0.720	450
Transparency in reward system	-0.047	0.410	450
Working conditions	-0.095	0.095	450
Comfort and safety	-0.050	0.376	450
Innovative learning	-0.047	0.408	450
Training conditions	-0.053	0.348	450
Empowerment	-0.031	0.580	450
Grievances handling procedure	-0.001	0.989	450
Grievances evaluation	- 0.073	0.199	450
Opportunity for growth	- 0.044	0.440	450
Promotion and education	- 0.004	0.942	450
Living conditions and finance	- 0.079	0.165	450
Relations with family members	- 0.080	0.157	450

* Correlation is significant at the 0.05 level (2-tailed)

** Correlation is significant at the 0.01 level (2-tailed)

Source: Computered Data

It is evident from the correlation matrix shown that the number of awards and certificates received by the women employees of different organizations is deeply correlated only with the two predominant factors of job satisfaction namely Job requirement and Job attachment. This implies that the women employees are able to get most of the merit and commendation certificates and awards for their meaningful contribution towards the performance of their job.

RESULTS AND DISCUSSION

EMPLOYEE CHARACTERISTICS

Of the IT professionals who had responded, only 16.60 per cent were qualified Engineering Graduates in Computer Sciences or Electronics, while 13.33 per cent were Post Graduates in Engineering. Non-Engineering Graduates with IT certifications, however, stood at the majority.

REASONS BEHIND LEAVING THE EARLIER JOB

Through the various instruments used, an attempt was made to understand why IT employees surveyed had left their earlier jobs to join the current job. Compensation, lack of challenges and opportunities in one's position and dissatisfaction in job were cited as the main reasons.

COMPENSATION

With 50 per cent of the IT professionals citing poor compensation packages in earlier jobs as the main reason behind leaving such jobs, compensation clearly continues to be the age-old mechanism of retention; organisations try to hold back their talented employees by paying them even more than market-defined salaries. If pay levels do not match others or the best in the industry it may be a cause of dissatisfaction.

CAREER DEVELOPMENT OPPORTUNITIES

Appropriate and well designed career development opportunities may prove to be a vital tool to enhance the level of motivation of the workforce. 27.3 per cent of the IT professionals surveyed have revealed lack of such opportunities as the reason behind leaving their earlier job.

JOB DISSATISFACTION

Traditionally defined to be a positive emotional state reflecting affective

1. Concerned with or arousing feelings or emotions;

2. Attitude or response towards the job situation (Mak and Sockel, 2001) such dissatisfaction has stemmed from factors like dearth of challenging projects and absence of a suitable work environment.

POSITIVE CHANGES IN THE PHYSICAL WORK ENVIRONMENT CAN HELP IN STAFF RETENTION

Designing working conditions that may suit the needs of different employees may prove to be a vital retention strategy. The key issues herein may be the organisation's posture towards work hours and environment, communication concerning projects and their employment and forms of supervision.

REASONS THAT MAY CAUSE EMPLOYEES TO STAY IN THEIR PRESENT JOB

The likelihood of an employee leaving an organisation is an effective way of predicting if an employee will leave within a relatively short period of time. Approximately 10 per cent of the participants indicated that they were likely to leave the present job within the next two years; 57 per cent expressed their plans to stay in the present job till the next two years.

JOB SECURITY

Job security has been revealed to be a cause cited by IT professionals to stay in their present job. It assumes critical significance in the face of massive layoffs, downsizing and closure of companies in the phase of recession. Organisations may provide job security to their talented staff by way of alternatives like redeployment

BENEFITS, REWARDS AND RECOGNITION AS TOOLS FOR RETENTION

IT companies are renowned for offering innovative benefits, both monetary and non-monetary, to retain their key performers. Among the fringe benefits fringe benefits, *n.pl* the benefits, other than wages or salary, provided by an employer for employees (e.g., health insurance, vacation time, disability income). Given out to the employees surveyed, the most popular ones were allowances for lunch, accommodation, conveyance and medicine. Others included festival allowances and retirement packages.

SUGGESTION

- The frustration regarding the personnel and company policies in the minds of the employees at lower level may be drastically reduced and suitable remedial action may be taken earnestly and sincerely as expected by most of the respondents.
- Management of human resources is the greatest asset and the management should promote congenial relations and co-operation among the different groups of employees in order to meet the present day demands of the IT sector.
- Maintenance of good working conditions have the effect of increasing job satisfaction and hence, the management must try to achieve this goal by improving the safety management system and upgrading the technologies and expertise in various areas of activities involving production operations.
- Though the functioning of Grievances redressal committee in different organizations is found to be satisfactory, the employees think that the committee should divert more attention towards the early settlement of their complaints and grievances.
- Studies on employee job satisfaction may be made at regular intervals of time and the results obtained should be implemented earnestly and sincerely as expected by most of the women employees of different organizations, Chennai.

CONCLUSION

Organisations in the IT industry encounter the twin problems of recognising and weeding out of unwanted and less performing employees on the one hand, and retaining the high performers on the other. When valuable workers would want to quit their job, how would the organisation encourage them to reconsider their decision? How does the management convince them to work out any problem that might be acting as a 'push' factor in their decision to leave; or to re-evaluate the benefits of offers acting as a 'pull' factor (Sahu and Gupta, 1999), would be a major area of concern of IT organizations.

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HUMAN RESOURCE DEVELOPMENT PRACTICES IN INFORMATION TECHNOLOGY INDUSTRY IN INDIA

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ABSTRACT

In highly skilled intensive and knowledge intensive industries like information technology industry, human resource plays a vital role. The survey is conducted in 13 selected different information technology organisations such as Tata Consultancy Services, Wipro Technologies, Infosys Technologies Ltd., Hindustan Computer Ltd. (HCL), Dell International, Birlasoft, Pyramid Consulting Inc., Quark Inc., Semi-Conductor Laboratory (SCL Ltd.), Alcatel-Lucent Technologies, Attra, Kanbay International and Omnia Technologies from Delhi, Bangalore, Pune, Chandigarh and Mohali respectively. The present paper, examines the extent of implementation of human resource development practices in selected information technology organizations. This study is primarily based on primary data in which 500 sample sizes from different information technology organisations has been collected. The questionnaire has been divided into two parts. Part (A) includes detailed information of personal and demographic data of the employees and Part (B) includes various aspects of human resource development. The present paper, examines the extent of implementation of human resource development practices in information technology industry. The results show that majority of employees accept that various human resource development practices have been implemented successfully.

KEYWORDS

Human Resource, Human Resource Development, Information Technology Industry, Primary Data.

INTRODUCTION

In highly skill intensive and knowledge intensive industries like information technology industry human resource plays a vital role. This industry is highly competitive, dynamic and technical industry, whose growth and development depends upon its human resource much more strongly than other resources. In global and knowledge-based economy, business has become more competitive and tough due to rapid changes in demand, market structure, market imperfections, technologies, national and international policies etc. which can be handled only by competent, efficient and skilled human resource (Rao, T.V., 1997, p.23; Mamoria, C.B., 2002, p.541). Knowledge assets and intellectual capital are two most important assets of Knowledge economy. Knowledge assets broadly cover stock of knowledge and capabilities of a nation, while intellectual capital comprises of structural capital and human capital. The structural capital primarily relates to information technology and human capital covers human resources as well as the stakeholders i.e. distributors, suppliers, customers of an organization. However, knowledge economy includes up-to-date knowledge, skilled and educated human resource; continuous research and development, investment in information technology and infrastructure (Malhotra, Yogesh, 2003, pp.3-8).

Human resource development practices comprises of many components like - selection procedures, training policy, performance and promotion policy, transfer policy, wages, compensation, social security policy, worker's welfare policy, re-creational policy, employee-employee/employer/management relations, trade union, health policy, etc. All the components of human resource development practices must be continuously integrated with the human resource policy of the organization. This paper seeks to study the human resource development practices in India's information technology industry. The employees of information technology organizations covered in this paper are – Tata Consultancy Services (Noida), Wipro Technologies (Delhi), Infosys Technologies Ltd. (Chandigarh), Hindustan Computer Ltd. (HCL) (Noida), Dell International (Mohali), Birlasoft (Noida), Pyramid Consulting Inc. (Noida), Quark Inc. (Mohali), Semi-Conductor Laboratory (SCL Ltd) (Mohali), Alcatel-Lucent Technologies (Noida), Attra (Bangalore), Kanbay International Inc. (Pune) and Omnia Technologies (Noida). Out of total 13 information technology organizations, eight organizations are software, four are BPOs and one is hardware. The main objective of this paper is to assess the extent of human resource development practices prevailing in these organizations.

(A) GENERAL CHARACTERISTICS OF EMPLOYEES IN INFORMATION TECHNOLOGY INDUSTRY

The general characteristics of employees in Indian information technology industry are as following - near about 71.8 percent human resources are in the age group of 20-30 years, whereas 26 percent employees are in the age group of 30-40 years. Data reveals that, just two percent employees are even less than the age of twenty years and point two percent employees are of more than forty years. Near about 78.2 percent male employees are employed in information technology industry, whereas just 21.8 percent female employees are employed in this industry, which is much lower as compared to male employees. Out of five hundred sample-sizes of employees, ninety five employees are with general qualification, whereas 405 employees are with technical qualification. In general education 51.58 percent, 46.32 percent and 2.11 percent employees are graduate, post-graduate and under-graduate, whereas in technical education 36.30 percent employees are MCA, 24.69 percent are BCA, 21.98 percent are B-Tech, 9.38 percent are M-tech, 7.16 percent are MBA and point forty nine percent are of other qualifications like diploma in computer science or P.G. diploma in computer applications etc.

A majority of employees that is 85.2 percent are of urban background and on the other hand just 14.8 percent employees are of rural background. Study shows that just 39.8 percent employees are married and 60.2 percent employees are unmarried. It means a majority of employees are unmarried. Majority of employees are engaged in technical department that is near about 74.8 percent, whereas in non-technical, managerial and other department, 19 percent, 5.8 percent and 0.4 percent employees are engaged. There is no employee having more experience than thirty years. On the other hand, a large number of employees that is 61.6 percent having experience less than five years, 30.4 percent of employees having experience between five to ten years and 7.6 percent of employees having experience ten to twenty years. Out of five hundred employees just two employees have experience between twenty to thirty years. The large number of employees did not disclose their monthly salaries. The 53.2 percent of employees did not give any idea regarding their monthly salaries. The 15.2 percent of employees are getting salary between the ranges of Rs. 30-40 thousand per month. Approximately 12.8 percent and 10.2 percent of employees are getting their monthly salaries between the range of Rs. 20-30 thousand and more than Rs. 40 thousand. Near about 8.6 percent employees are getting their salaries less than Rs. 20 thousand per month. Data reveals that 67 percent of employees are permanent and 18.2 percent are trainees and likely to be permanent. The 8.8 percent employees are purely temporary and six percent employees are just trainees. It means that 85.2 percent employees are permanent in the nature of appointment.

(B) HUMAN RESOURCE DEVELOPMENT PRACTICES IN INFORMATION TECHNOLOGY INDUSTRY

The present paper attempts to explore employee’s perception of the adequate and effective, implementation of human resource development practices in the information technology organizations.

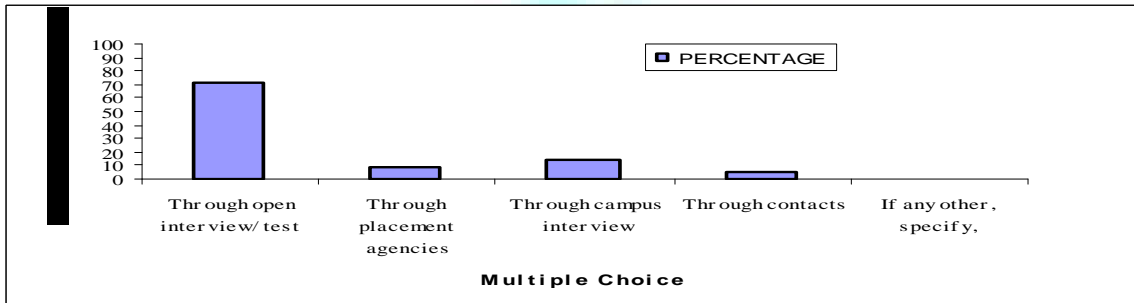
1. SELECTION PROCEDURE

TABLE 1 - CRITERIA OF SELECTION

MULTIPLE CHOICE	NO. OF EMPLOYEES	PERCENTAGE
Through open interview/test	353	70.6
Through placement agencies	48	9.6
Through campus interview	68	13.6
Through contacts	30	6
If any other, specify,	1	0.2
Total	500	100

Source: Primary Survey

FIGURE 1 - CRITERIA OF SELECTION



Source: Primary Survey

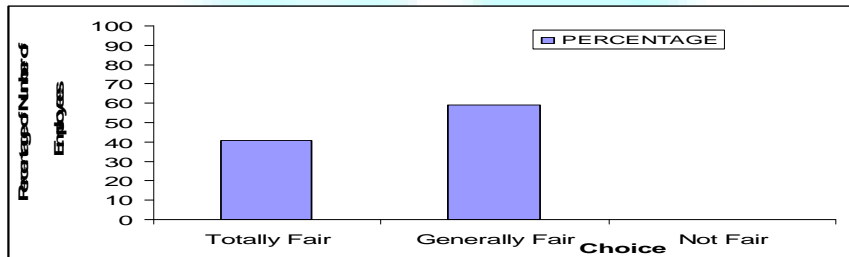
Figure 1 show that out of five hundred employees, majority of employees are selected by open interview method that is 70.6 percent. It is followed by campus interview, through which 13.6 percent employees are selected. Next is 9.6 percent and six percent employees are selected by placement agencies and by contacts. The 0.2 percent employees are selected by other methods.

TABLE 2-FAIRNESS OF SELECTION PROCEDURE

CHOICE	NO. OF EMPLOYEES	PERCENTAGE
Totally Fair	297	40.6
Generally Fair	203	59.4
Not Fair	-	-
TOTAL	500	100

Source: Primary Survey

FIGURE 2-FAIRNESS OF SELECTION PROCEDURE



Source: Primary Survey

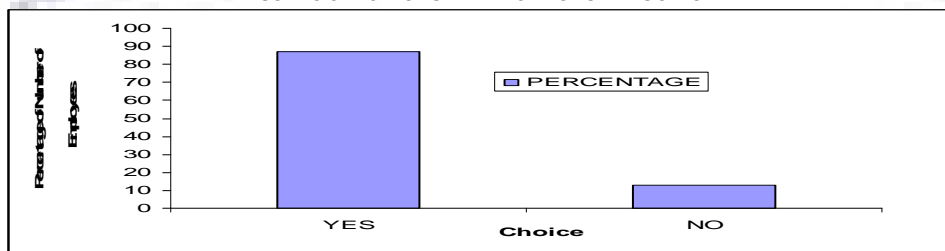
Near about 59.4 percent employees consider that selection procedure in information technology organization is generally fair. On the other hand 40.6 percent of employees consider that selection procedure is totally fair. None of any employee says that it is unfair (Figure 2).

TABLE 3-SATISFACTION WITH SELECTION PROCEDURE

CHOICE	YES	NO	TOTAL
NO. OF EMPLOYEES	436	64	500
PERCENTAGE	87.2	12.8	100

Source: Primary Survey

FIGURE 3-SATISFACTION WITH SELECTION PROCEDURE



Source: Primary Survey

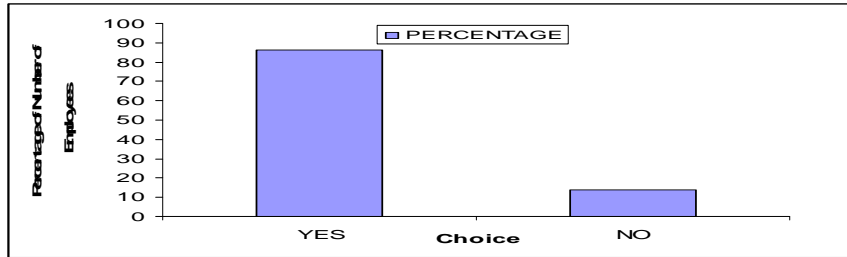
In figure 3 approximately, 87.2 percent employees are satisfied with selection procedure but 12.8 percent employees show their dissatisfaction regarding this procedure.

TABLE 4-ABILITY OF SELECTION PROCEDURE TO KEEP RIGHT PERSON AT RIGHT PLACE

CHOICE	YES	NO	TOTAL
NO. OF EMPLOYEES	432	68	500
PERCENTAGE	86.4	13.6	100

Source: Primary Survey

FIGURE 4-ABILITY OF SELECTION PROCEDURE TO KEEP RIGHT PERSON AT RIGHT PLACE



Source: Primary Survey

In these organizations 86.4 percent employees, agree that organization is capable to keep right person at right place but just 13.6 percent employees are disagreed regarding this (Figure 4).

2. TRAINING POLICY

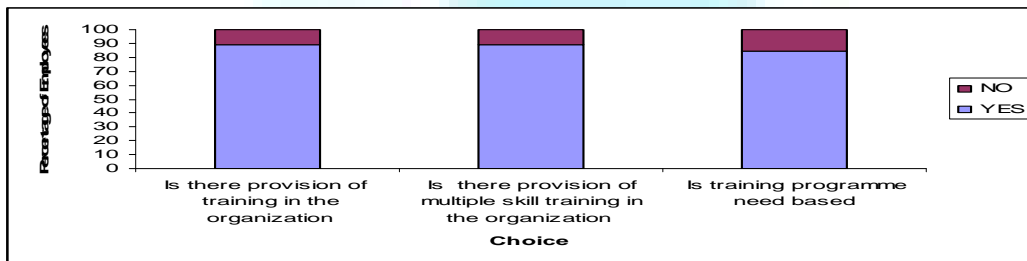
TABLE 5 - PROVISION OF TRAINING IN THE ORGANIZATION

CHOICE	YES	NO	TOTAL
Is there provision of training in the organization	445 (89)	55 (11)	500 (100)
Is there provision of multiple skill training in the organization	445 (89)	55 (11)	500 (100)
Is training programme need based	423 (84.6)	77 (15.4)	500 (100)

Source: Primary Survey

Braces in table shows %age of number of employees

FIGURE 5 - PROVISION OF TRAINING IN THE ORGANIZATION



Source: Primary Survey

Braces in Figure shows %age of number of employees

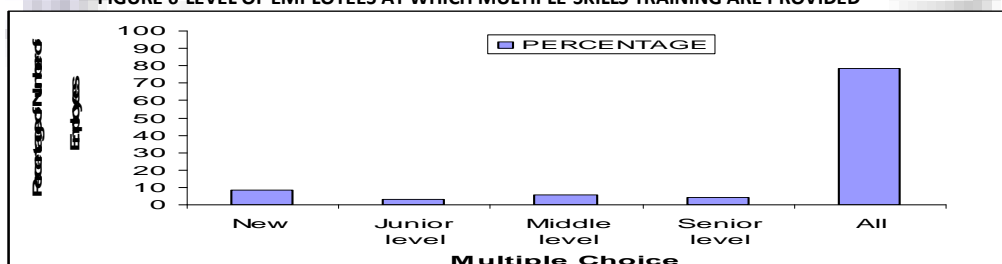
Figure 5 shows that in maximum organizations there is provision of training. Near about 89 percent employees consider that each and every organization in information technology sector has provided training facility to its employees. But 11 percent employees oppose it. Near about 89 percent employees consider that multiple-skill training is provided to them and just 11 percent employees say that it is not provided. The 84.6 percent employees feel that training program is need based.

TABLE 6-LEVEL OF EMPLOYEES AT WHICH MULTIPLE-SKILLS TRAINING ARE PROVIDED

MULTIPLE CHOICE	NO. OF EMPLOYEES	PERCENTAGE
New	42	8.4
Junior level	16	3.2
Middle level	28	5.6
Senior level	22	4.4
All	392	78.4
Total	500	100

Source: Primary Survey

FIGURE 6-LEVEL OF EMPLOYEES AT WHICH MULTIPLE-SKILLS TRAINING ARE PROVIDED



Source: Primary Survey

Figure 6 shows that 78.4 percent employees consider that multiple-skill training is provided to all employees at different levels. Followed by 8.4 percent employees consider that it is provided to new employees of the organization.

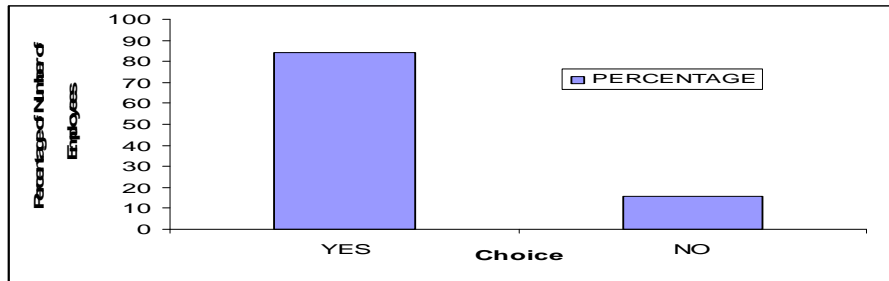
3. PERFORMANCE AND PROMOTION POLICY

TABLE 7-PROVISION OF ADEQUATE CAREER DEVELOPMENT OPPORTUNITIES IN THE ORGANIZATION

CHOICE	Yes	NO	TOTAL
NO. OF EMPLOYEES	421	79	500
PERCENTAGE	84.2	15.8	100

Source: Primary Survey

FIGURE 7-PROVISION OF ADEQUATE CAREER DEVELOPMENT OPPORTUNITIES IN THE ORGANIZATION



Source: Primary Survey

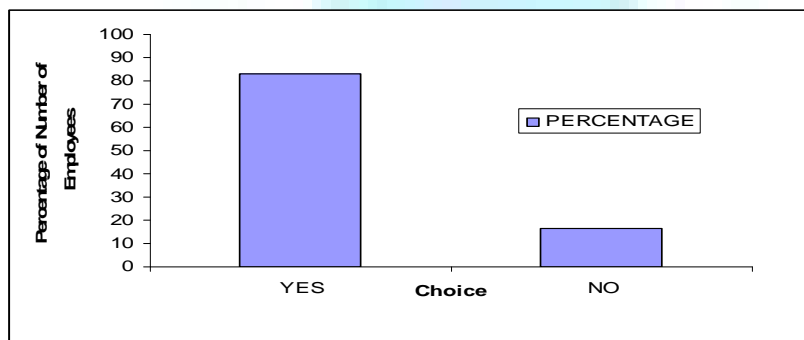
In the information technology organizations, 84.2 percent employees accept that there are adequate career development opportunities but 15.8 percent employees believe that there are not career development opportunities.

TABLE 8-SATISFACTION WITH PROMOTION POLICY

CHOICE	YES	NO	TOTAL
NO. OF EMPLOYEES	417	83	500
PERCENTAGE	83.4	16.6	100

Source: Primary Survey

FIGURE 8-SATISFACTION WITH PROMOTION POLICY



Source: Primary Survey

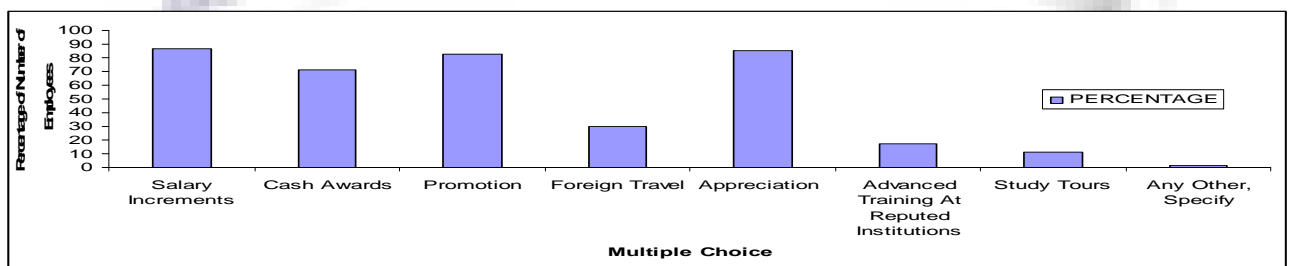
Figure 8 shows that 83.4 percent employees are satisfied with the promotion policy in information technology organizations, whereas 16.6 percent employees are dissatisfied with promotion policy.

TABLE 9-MECHANISMS USED BY THE ORGANIZATION FOR REWARDING GOOD PERFORMANCE (NO. OF EMPLOYEES = 500)

MULTIPLE CHOICE	NO. OF EMPLOYEES	PERCENTAGE
Salary Increments	435	87
Cash Awards	356	71.2
Promotion	413	82.6
Foreign Travel	149	29.8
Appreciation	428	85.6
Advanced Training At Reputed Institutions	87	17.4
Study Tours	57	11.4
Any Other, Specify	7	1.4

Source: Primary Survey

FIGURE 9-MECHANISMS USED BY THE ORGANIZATION FOR REWARDING GOOD PERFORMANCE (NO. OF EMPLOYEES = 500)



Source: Primary Survey

Figure 9 shows that majority of employees that is 87 percent employees consider that salary increments, is one of the most popular methods adopted for rewarding good performance. Next are appreciations, promotion and cash awards which are accepted by 85.6 percent, 82.6 percent and 71.2 percent employees are well known methods for rewarding good performance. On the other hand rewards like foreign travel, advance training at reputed institutions, study tours are acknowledged by relatively smaller proportion of employees, that is, 29.8 percent, 17.4 percent and 11.4 percent respectively. Other rewards include gifts; holidays are accepted by 1.4 percent employees.

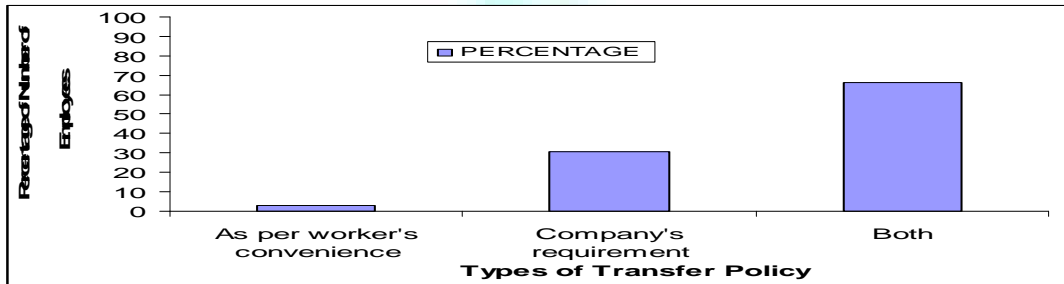
4. TRANSFER POLICY

TABLE 10-TYPES OF TRANSFER POLICY

Types of transfer policy	NO. OF EMPLOYEES	PERCENTAGE
As per worker's convenience	16	3.2
Company's requirement	153	30.6
Both	331	66.2
Total	500	100

Source: Primary Survey

FIGURE 10-TYPES OF TRANSFER POLICY



Source: Primary Survey

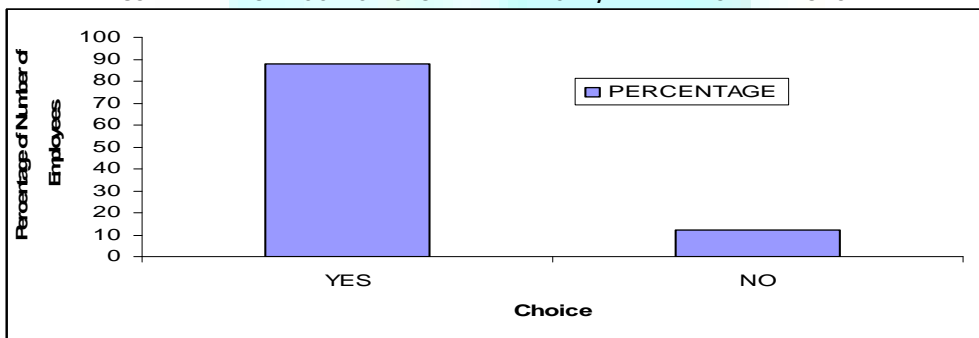
Figure 10 depicts that 66.2 percent employees consider that transfer is done on the basis of requirements of both employees and organisation. While 30.6 percent employees feel that transfer is done keeping in view company's requirements alone. Only 3.2 percent employees agreed that transfer is done as per worker's convenience.

TABLE 11-EMPLOYEE'S SATISFACTION WITH TRANSFER/ INITIAL PLACEMENT POLICY

CHOICE	YES	NO	TOTAL
NO. OF EMPLOYEES	438	62	500
PERCENTAGE	87.6	12.4	100

Source: Primary Survey

FIGURE 11-EMPLOYEE'S SATISFACTION WITH TRANSFER/ INITIAL PLACEMENT POLICY



Source: Primary Survey

Majority of employees', that is, 87.6 percent are satisfied with the transfer policy but just 12.4 percent of employees are dissatisfied with this policy in the information technology organizations, showed by Figure 11.

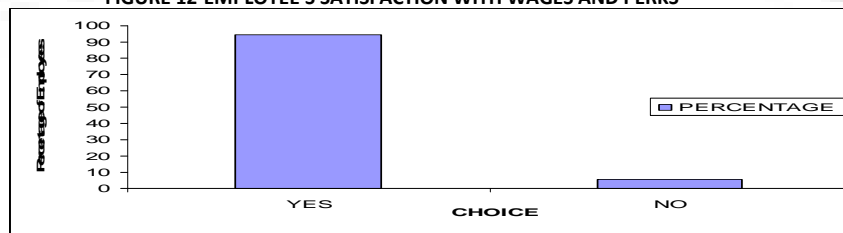
5. WAGES, COMPENSATION, SOCIAL SECURITY SCHEMES AND WORKING CONDITIONS POLICY

TABLE 12-EMPLOYEE'S SATISFACTION WITH WAGES AND PERKS

Source: Primary Survey

CHOICE	YES	NO	TOTAL
NO. OF EMPLOYEES	473	27	500
PERCENTAGE	94.6	5.4	100

FIGURE 12-EMPLOYEE'S SATISFACTION WITH WAGES AND PERKS



Source: Primary Survey

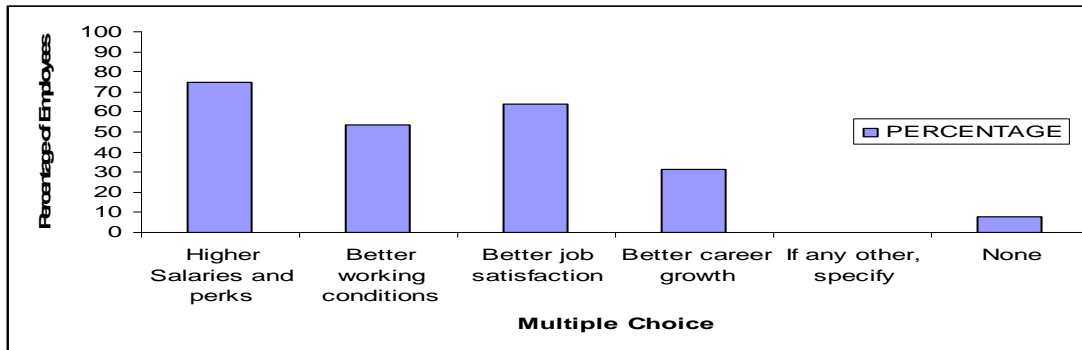
Figure 12 reveals that 94.6 percent employees are satisfied with their wages and perks, whereas just 5.4 percent employees are unsatisfied.

TABLE 13-FACTORS FOR JOB CHANGING (NO. OF EMPLOYEES = 500)

MULTIPLE CHOICE	NO. OF EMPLOYEES	PERCENTAGE
Higher Salaries and perks	373	74.6
Better working conditions	267	53.4
Better job satisfaction	319	63.8
Better career growth	157	31.4
If any other, specify	-	-
None	39	7.8

Source: Primary Survey

FIGURE 13-FACTORS FOR JOB CHANGING (NO. OF EMPLOYEES = 500)



Source: Primary Survey

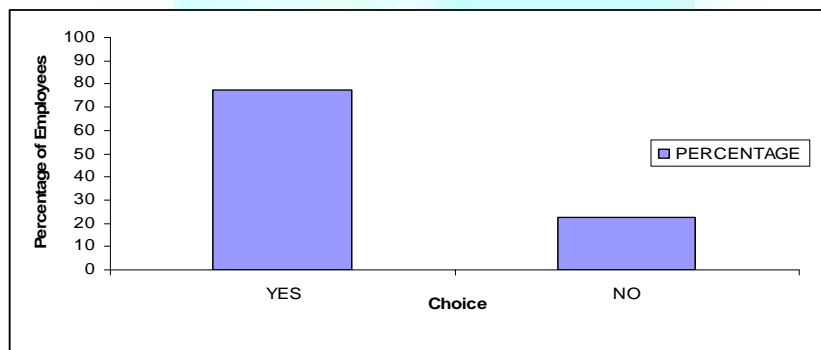
Figure 13 shows that 74.6 percent employees change their job for higher salaries and perks, 63.8 percent for better job satisfaction, followed by 53.4 percent for better working conditions and 31.4 percent employees for better career growth opportunities. Approximately 7.8 percent of employees consider that they don't want to change their jobs for any reason because they are highly satisfied with their existing jobs.

TABLE 14-EMPLOYEE'S SATISFACTION WITH JOB SECURITY IN THE ORGANIZATION

CHOICE	YES	NO	TOTAL
NO. OF EMPLOYEES	386	114	500
PERCENTAGE	77.2	22.8	100

Source: Primary Survey

FIGURE 14-EMPLOYEE'S SATISFACTION WITH JOB SECURITY IN THE ORGANIZATION



Source: Primary Survey

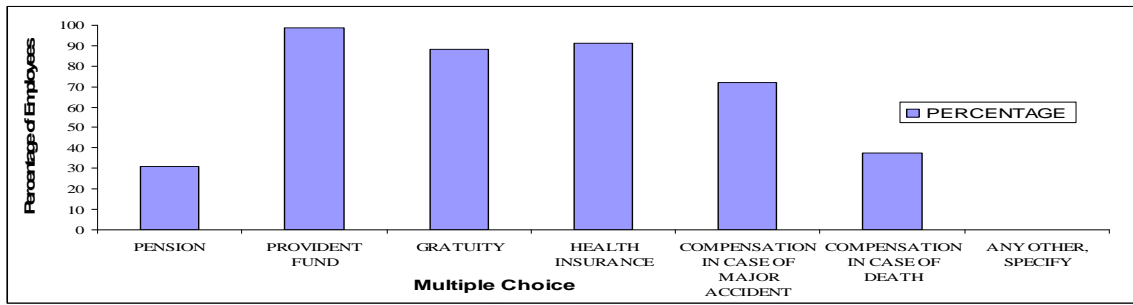
Figure 14 shows that 77.2 percent employees accept that there is job security in the information technology organizations. But 22.8 percent employees do not accept that their jobs are secured.

TABLE 15-TYPES OF SOCIAL SECURITY BENEFITS PROVIDED BY THE ORGANIZATION (NO. OF EMPLOYEES= 500)

MULTIPLE CHOICE	NO. OF EMPLOYEES	PERCENTAGE
PENSION	155	31
PROVIDENT FUND	493	98.6
GRATUITY	441	88.2
HEALTH INSURANCE	456	91.2
COMPENSATION IN CASE OF MAJOR ACCIDENT	361	72.2
COMPENSATION IN CASE OF DEATH	187	37.4
ANY OTHER, SPECIFY	-	-

Source: Primary Survey

FIGURE 15-TYPES OF SOCIAL SECURITY BENEFITS PROVIDED BY THE ORGANIZATION (NO. OF EMPLOYEES= 500)



Source: Primary Survey

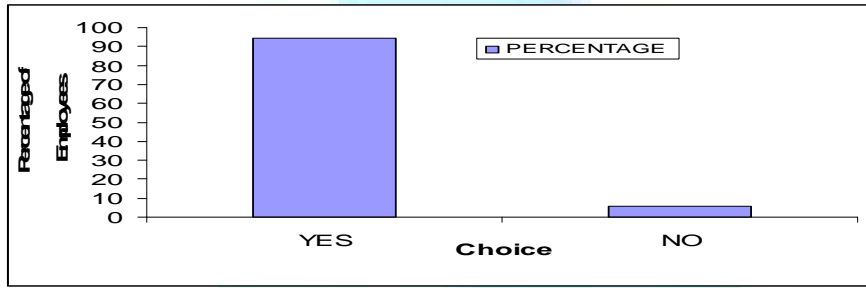
Approximately 98.6 percent, employees reported that provident fund is provided to them followed by 91.2 percent employees reporting that health insurance is provided. The 88.2 percent employees accept that gratuity benefit is provided to them. Compensation in case of major accident is given to employees, is accepted by 72.2 percent. Just, 37.4 percent and 31 percent employees say that compensation in case of death and pension benefit is given to them, which is comparatively very low is shown in Figure 15.

TABLE 16-PROVISION OF ADEQUATE PAID LEAVE FACILITIES AND HOLIDAYS

CHOICE	YES	NO	TOTAL
NO. OF EMPLOYEES	471	29	500
PERCENTAGE	94.2	5.8	100

Source: Primary Survey

FIGURE 16-PROVISION OF ADEQUATE PAID LEAVE FACILITIES AND HOLIDAYS



Source: Primary Survey

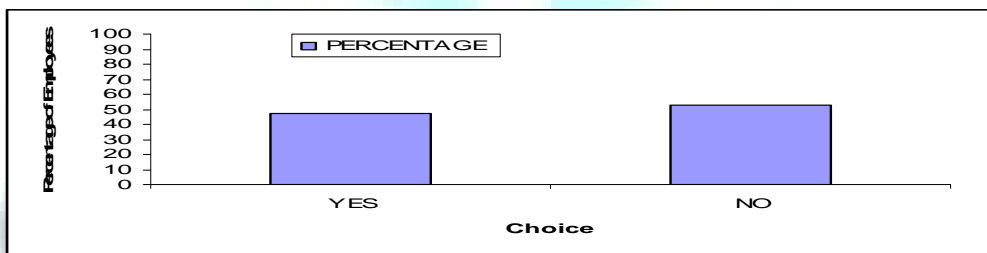
Figure 16 conveys that majority of employees 94.2 percent consider that there are adequate provisions of leave facilities and holidays in information technology industry. But a very low percentage that is 5.8 percent employees' say that they are not satisfied with the provision of adequate paid leave facilities and holidays in this industry.

TABLE 17-OVER TIME WORKING HOURS IN THE ORGANIZATION

CHOICE	YES	NO	TOTAL
NO. OF EMPLOYEES	235	265	500
PERCENTAGE	47	53	100

Source: Primary Survey

FIGURE 17-OVER TIME WORKING HOURS IN THE ORGANIZATION



Source: Primary Survey

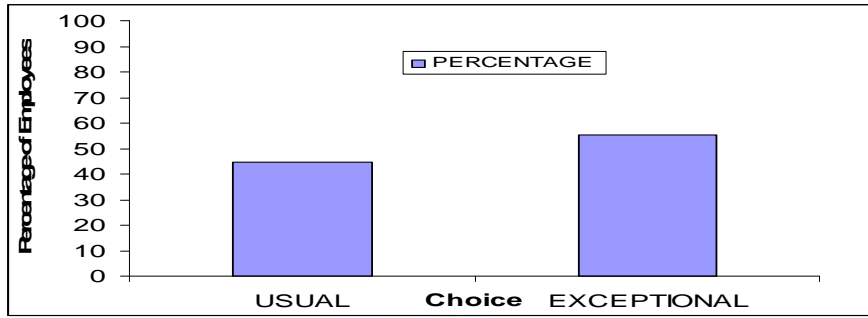
Figure 17 shows that 47 percent employees say that they work for longer hours than as per schedule and they are not paid any overtime allowances for extra hours they work, whereas 53 percent employees say that there are no over working hours. They do work, according to the fixed working hours decided by the organization. On the other hand, if employees do overwork for extra hours then company pays extra amount to them as an overtime allowance. Hence, there is fifty-fifty proportion about longer working hours in information technology industry.

TABLE 18-USUAL OR EXCEPTIONAL WORKING HOURS

CHOICE	USUAL	EXCEPTIONAL	TOTAL
NO. OF EMPLOYEES	105	130	235
PERCENTAGE	44.68	55.32	100

Source: Primary Survey

FIGURE 18-USUAL OR EXCEPTIONAL WORKING HOURS



Source: Primary Survey

In Figure 18, the 55.32 percent employees state that it is exceptional that they work for more than eight hours on an average in a day. But 44.68 percent employees state that they usually work for more than eight hours.

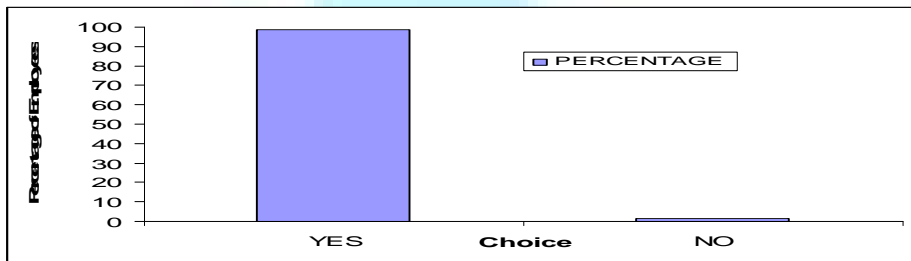
6. RECREATIONAL FACILITY

TABLE 19-PROVISION OF RECREATIONAL FACILITY IN THE ORGANIZATION

CHOICE	YES	NO	TOTAL
NO. OF EMPLOYEES	492	8	500
PERCENTAGE	98.4	1.6	100

Source: Primary Survey

FIGURE 19-PROVISION OF RECREATIONAL FACILITY IN THE ORGANIZATION



Source: Primary Survey

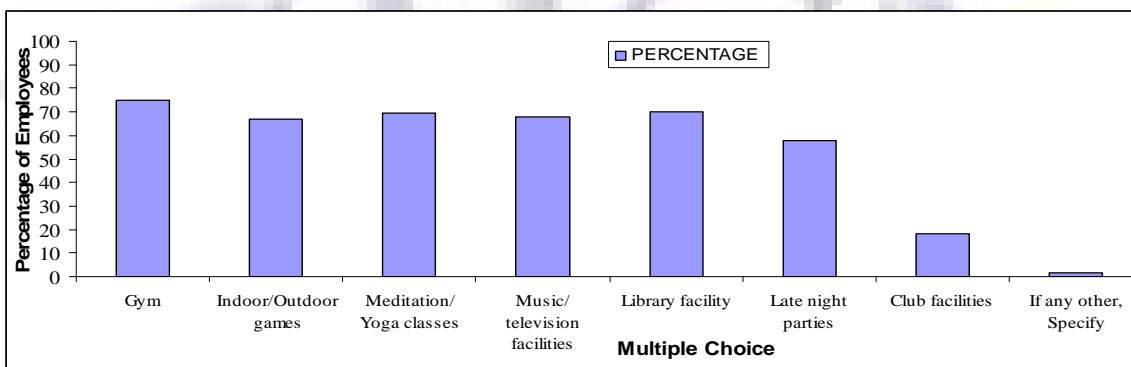
To overcome the tension, depression, stress and tiredness among employees and to make them energetic, active and refresh, information technology sector provides various types of recreational facilities. Figure 19 reveals that majority of employees near about 98.4 percent employees' state that organizations provided all recreational facilities to them but just 1.6 percent employees say that organizations do not provide such facilities.

TABLE 20 -TYPES OF RECREATIONAL FACILITIES (NO. OF EMPLOYEES=500)

MULTIPLE CHOICE	NO. OF EMPLOYEES	PERCENTAGE
Gym	374	74.8
Indoor/Outdoor games	333	66.6
Meditation/ Yoga classes	348	69.6
Music/ television facilities	339	67.8
Library facility	350	70
Late night parties	290	58
Club facilities	90	18
If any other, Specify	7	1.4

Source: Primary Survey

FIGURE 20 -TYPES OF RECREATIONAL FACILITIES (NO. OF EMPLOYEES=500)



Source: Primary Survey

In these organizations, 74.8 percent employees accept that gym facility is provided to them for their fitness. After this 70 percent employees state that library facility is provided to them to upgrade their knowledge and skill. Meditation/yoga classes are provided to them is accepted by 69.6 percent employees. Music/television facilities are provided to employees is accepted by 67.8 percent employees. Indoor/outdoor facilities are provided to employees, is accepted by 66.6 percent employees. Near about 58 percent employees' state that facilities of late night parties are provided to them. In information technology industry,

18 percent employees accept that club facilities are provided to them. Only 1.4 percent employees state that other facilities like holiday tour, may be domestic or foreign tour are provided to them. It is a good indicator of the welfare of the employees by the information technology industry (Figure 20).

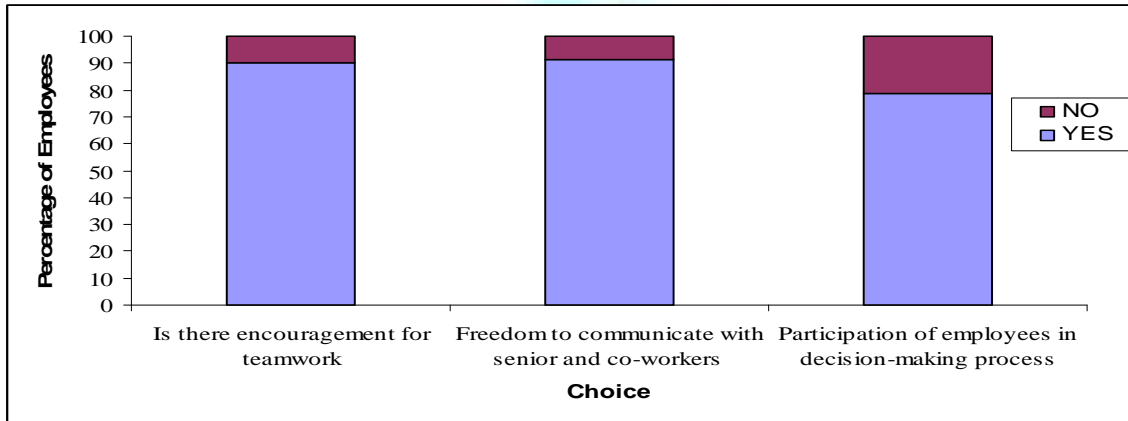
7. EMPLOYEES-EMPLOYEES/EMPLOYER/MANAGEMENT RELATIONS

TABLE 21-ORGANIZATION'S ENCOURAGEMENT TO TEAMWORK

CHOICE	YES	NO	TOTAL
Is there encouragement for teamwork	451 (90.2)	49 (9.8)	500 (100)
Freedom to communicate with senior and co-workers	457 (91.4)	43 (8.6)	500 (100)
Participation of employees in decision-making process	393 (78.6)	107 (21.4)	500 (100)

Source: Primary Survey, Brackets in table shows %age of number of employees

FIGURE 21-ORGANIZATION'S ENCOURAGEMENT TO TEAMWORK



Source: Primary Survey, Brackets in Figure shows %age of number of employees

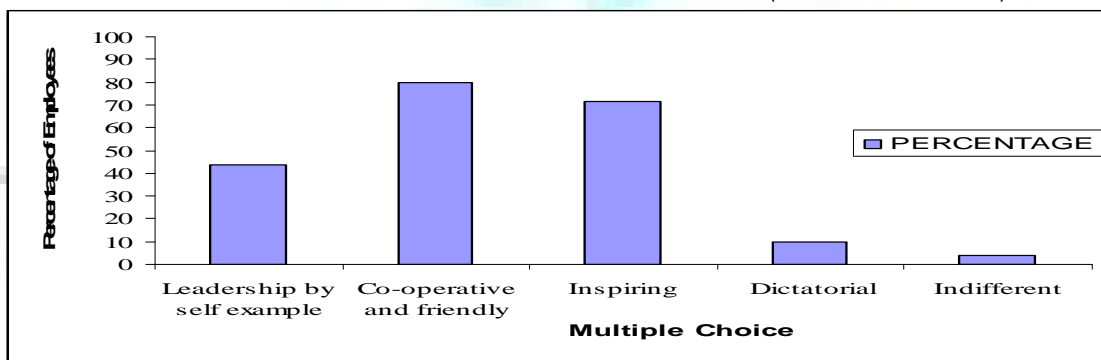
In Figure 21, 90.2 percent employees state that there is an encouragement for teamwork in the organization but just 9.8 percent employees disagree with it. The 91.4 percent employees accept that there is freedom to communicate with their seniors, colleagues and juniors or even with the employees of other departments. There is not any type of restriction in communication with any one. But just 8.6 percent employees believed that there is lack of communication. The 78.6 percent employees state that they have opportunity to take part in decision-making process but 21.4 percent employees' state that they do not have freedom to take participation in the process of decision-making.

TABLE 22-MANAGEMENT'S ATTITUDE TOWARDS EMPLOYEES (NO. OF EMPLOYEES = 500)

MULTIPLE CHOICE	NO. OF EMPLOYEES	PERCENTAGE
Leadership by self example	218	43.6
Co-operative and friendly	398	79.6
Inspiring	358	71.6
Dictatorial	48	9.6
Indifferent	19	3.8

Source: Primary Survey

FIGURE 22-MANAGEMENT'S ATTITUDE TOWARDS EMPLOYEES (NO. OF EMPLOYEES = 500)



Source: Primary Survey

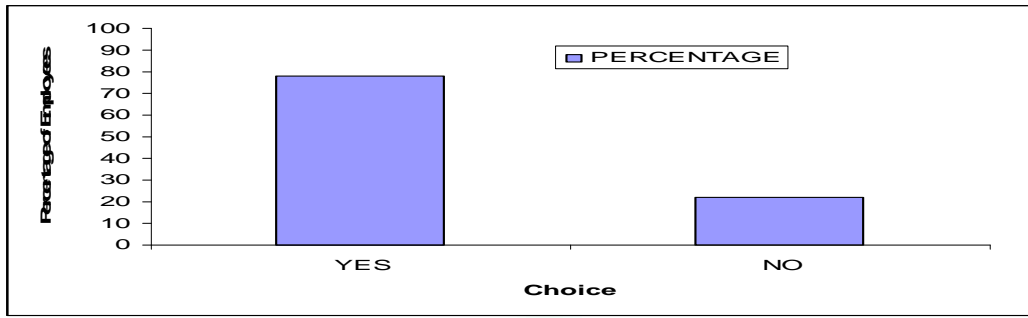
Figure 22 conveys that 79.6 percent and 71.6 percent, employees state that management's attitude towards them is co-operative, friendly and inspiring. Leadership by self example is moderate according to 43.6 percent of employees. Whereas 9.6 percent and 3.8 percent employees consider that the management's attitude towards them is dictatorial and indifferent, this is relatively lower. This type of attitude is unfavourable for any organization.

TABLE 23-ENCOURAGEMENT TO EMPLOYEES TO EXPERIMENT / RISK-TAKING

CHOICE	YES	NO	TOTAL
NO. OF EMPLOYEES	390	110	500
PERCENTAGE	78	22	100

Source: Primary Survey

FIGURE 23-ENCOURAGEMENT TO EMPLOYEES TO EXPERIMENT/RISK-TAKING



Source: Primary Survey

Management encourages their employees to do experiments/risk-taking in advanced industries like information technology. Figure 23 shows that 78 percent employees accept that their management encourages them to do experiment/risk-taking, but 22 percent employees feel otherwise.

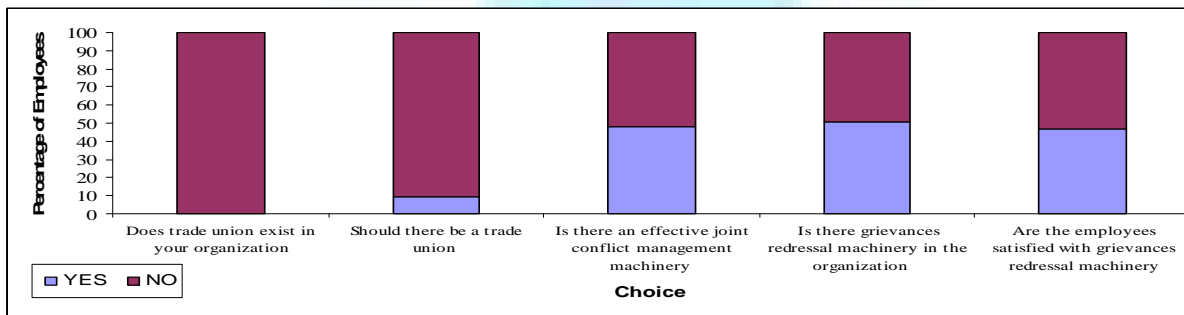
8. TRADE UNION

TABLE 24-TRADE UNION IN INFORMATION TECHNOLOGY INDUSTRY

CHOICE	YES	NO	TOTAL
Does trade union exist in your organization	-	500	500
	-	100	(100)
Should there be a trade union	46	454	500
	(9.2)	(90.8)	(100)
Is there an effective joint conflict management machinery	239	261	500
	(47.8)	(52.2)	(100)
Is there grievances redressal machinery in the organization	252	248	500
	(50.4)	(49.6)	(100)
Are the employees satisfied with grievances redressal machinery	234	266	500
	(46.8)	(53.2)	(100)

Source: Primary Survey, Braces in table shows %age of number of employees

FIGURE 24-TRADE UNION IN INFORMATION TECHNOLOGY INDUSTRY



Source: Primary Survey, Braces in Figure shows %age of number of employees

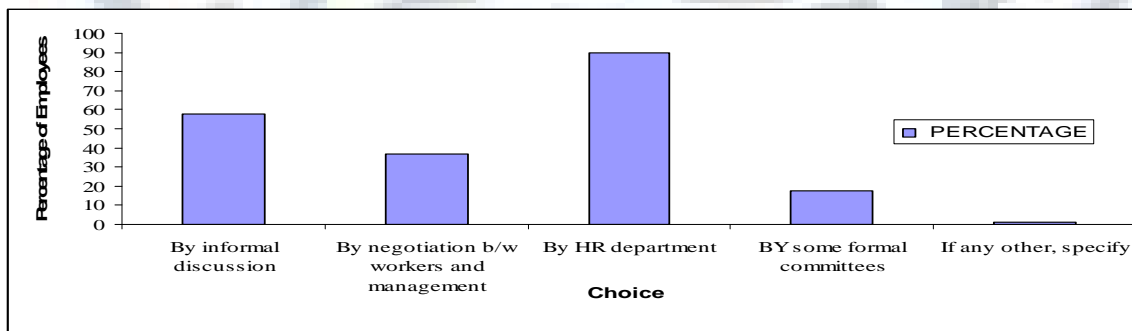
There is no trade union in information technology industry. Just 9.2 percent employees state that there is need for trade union but majority of employees that is 90.8 percent do not want any trade union. Figure 24 shows that 52.2 percent employees state that there is not any effective joint conflict management machinery; whereas 47.8 percent employees say that there is machinery to manage conflict effectively. Grievances redressal machinery exists, is accepted by 50.4 percent employees but 49.6 percent employees refuse it. The 46.8 percent employees are satisfied with grievance redressal machinery while 53.2 percent employees are dissatisfied with it.

TABLE 25 - METHODS OF RESOLVING CONFLICTS (NO. OF EMPLOYEES = 500)

METHODS	NO.OF EMPLOYEES	PERCENTAGE
By informal discussion	288	57.6
By negotiation b/w workers and management	183	36.6
By HR department	449	89.8
BY some formal committees	86	17.2
If any other, specify	5	1

Source: Primary Survey

FIGURE 25-METHODS OF RESOLVING CONFLICTS (NO. OF EMPLOYEES = 500)



Source: Primary Survey

The 89.8 percent employees accept that maximum conflicts are sorted out by human resource department whereas 57.6 percent employees say that it is solved by informal discussions. A low percentage employees that is 36.6 and 17.2, accept that it is sorted out by negotiation between workers and management and by some formal committees. Just one percent employees state that for it other methods are used (Figure 25).

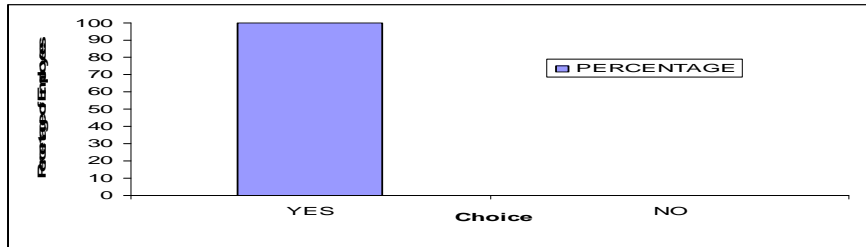
9. HEALTH FACILITY

TABLE 26-PROVISION OF MEDICAL FACILITY IN THE ORGANIZATION

CHOICE	YES	NO	TOTAL
NO. OF EMPLOYEES	500	-	500
PERCENTAGE	100	-	100

Source: Primary Survey

FIGURE 26-PROVISION OF MEDICAL FACILITY IN THE ORGANIZATION



Source: Primary Survey

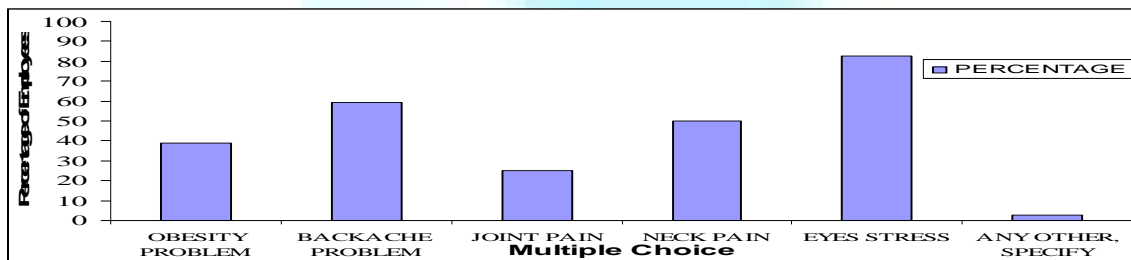
Figure 26 shows that hundred percent employees state that medical facilities are provided to them by their organizations.

TABLE 27-WORK RELATED TO HEALTH HAZARDS IN THE ORGANIZATION (NO. OF EMPLOYEES =500)

MULTIPLE CHOICE	NO. OF EMPLOYEES	PERCENTAGE
OBESITY PROBLEM	195	39
BACKACHE PROBLEM	296	59.2
JOINT PAIN	124	24.8
NECK PAIN	250	50
EYES STRESS	413	82.6
ANY OTHER, SPECIFY	13	2.6

Source: Primary Survey

FIGURE 27-WORK RELATED TO HEALTH HAZARDS IN THE ORGANIZATION (NO. OF EMPLOYEES =500)



Source: Primary Survey

In information technology organizations there are various health hazards because of stressful job and long working hours etc. In information technology organizations, near about 82.6 percent employees are facing problems related to eyes because of long time working on computer screen. Other problems are backache problems, neck pain and obesity problem which is accepted by 59.2 percent, 50 percent and 39 percent employees. Joint pain problem is faced by 24.8 percent employees, 2.6 percent employees face other health problems like headache, swelling on feet etc (Figure 27).

10. OTHER ASPECTS

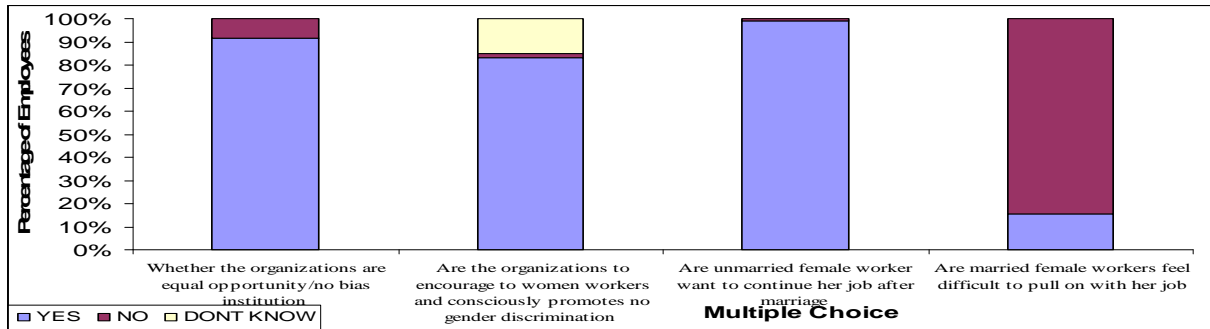
TABLE 28-AN EQUAL OPPORTUNITY /NO BIAS INSTITUTION

MULTIPLE CHOICE	YES	NO	DONT KNOW	TOTAL
Whether the organizations are equal opportunity/no bias institution	457 (91.4)	4.3 (8.6)	-	500 (100)
Are the organizations to encourage to women workers and consciously promotes no gender discrimination	416 (83.2)	8 (1.6)	76 (15.2)	500 (100)
Are unmarried female worker want to continue her job after marriage	108 (99.08)	1 (.92)	-	109 (100)
Are married female workers feel difficult to pull on with her job	17 (15.60)	92 (84.40)	-	109 (100)

Source: Primary Survey

Braces in table shows %age of number of employees

FIGURE 28-AN EQUAL OPPORTUNITY /NO BIAS INSTITUTION



Source: Primary Survey, Braces in Figure shows %age of number of employees

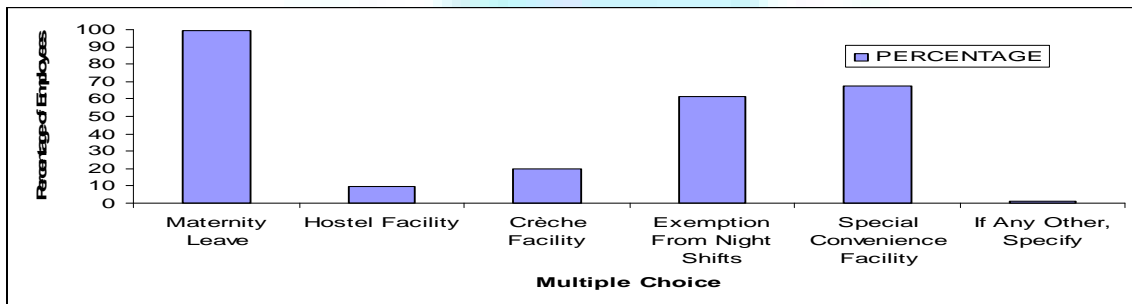
The 91.4 percent employees state that it is an equal opportunity institution but just 8.6 percent employees opted otherwise. Likewise 83.2 percent employees state that information technology industry encourages the woman employees to participate and promotes conscious no gender discrimination policy. The 15.2 percent employees do not know and express their ignorance about gender sensitivity issue. The participation of female employees is low in information technology industry. In case of female employees 84.40 percent feel that they do not feel difficult to pull on with their jobs after marriage but 15.60 percent females feel otherwise. However, 99.08 percent of female employees want to continue their jobs even after marriage (Figure 28).

TABLE 29-FACILITIES TO WOMEN EMPLOYEES (NO. OF EMPLOYEES = 500)

MULTIPLE CHOICE	NO. OF EMPLOYEES	PERCENTAGE
Maternity Leave	497	99.4
Hostel Facility	48	9.6
Crèche Facility	100	20
Exemption From Night Shifts	307	61.4
Special Convenience Facility	338	67.6
If Any Other, Specify	7	1.4

Source: Primary Survey

FIGURE 29-FACILITIES TO WOMEN EMPLOYEES (NO. OF EMPLOYEES = 500)



Source: Primary Survey

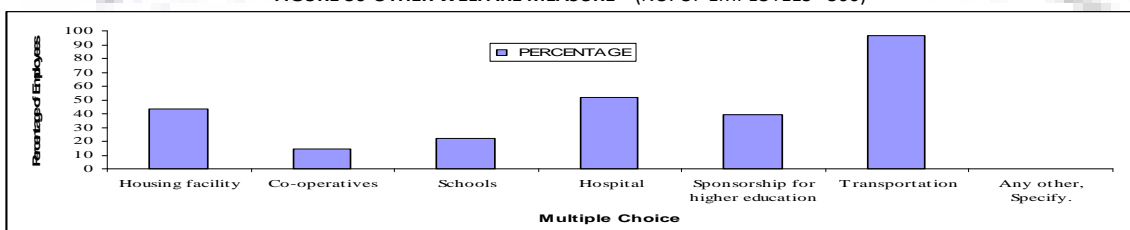
Various employees consider that Information technology industry provides several facilities to the women employees to increase their participation ratio. Figure 29 conveys that near about 99.4 percent employees consider that maternity benefit is provided to female employees when required. The 67.6 percent employees consider that special convenience facility is provided to female employees, whereas 61.4 percent employees accept that exemption from night shift facility is provided to female employees. Twenty percent employees state that creche facility is provided. The 9.6 percent employees' reports that hostel facility and 1.4 percent state that other facility are provided to female employees.

TABLE 30-OTHER WELFARE MEASURE (NO. OF EMPLOYEES =500)

MULTIPLE CHOICE	NO. OF EMPLOYEES	PERCENTAGE
Housing facility	216	43.2
Co-operatives	71	14.2
Schools	112	22.4
Hospital	258	51.6
Sponsorship for higher education	197	39.4
Transportation	482	96.4
Any other, Specify.	-	-

Source: Primary Survey

FIGURE 30-OTHER WELFARE MEASURE (NO. OF EMPLOYEES =500)



Source: Primary Survey

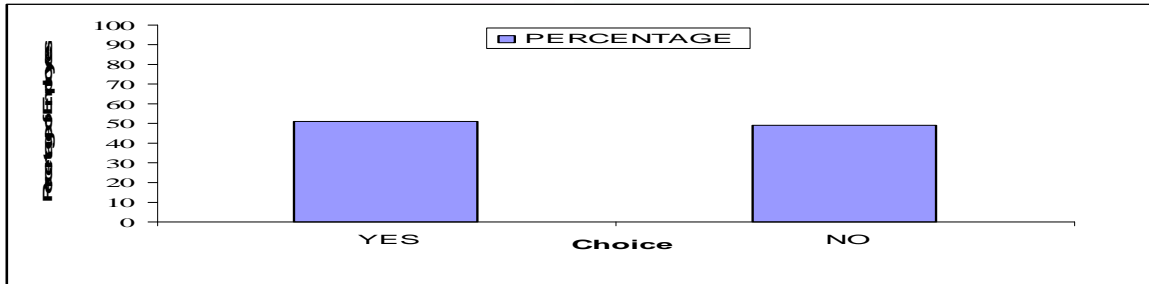
These organisations provide transportation facilities to its employees, 96.4 percent of employees accepted it. The 51.6 percent employees state that hospital facility is provided to them and 43.2 percent employees state that housing facility is also provided to them. Sponsorship for higher education facility is accepted by 39.4 percent employees. The 22.4 percent employees accepted that school facility is provided to them by organisations. A very low percentage of employees that is 14.2, consider that co-operative facility is provided to them (Figure 30).

TABLE 31-PROVISION OF STOCK OPTION IN THE ORGANIZATION

CHOICE	YES	NO	TOTAL
NO. OF EMPLOYEES	254	246	500
PERCENTAGE	50.8	49.2	100

Source: Primary Survey

FIGURE 31-PROVISION OF STOCK OPTION IN THE ORGANIZATION



Source: Primary Survey

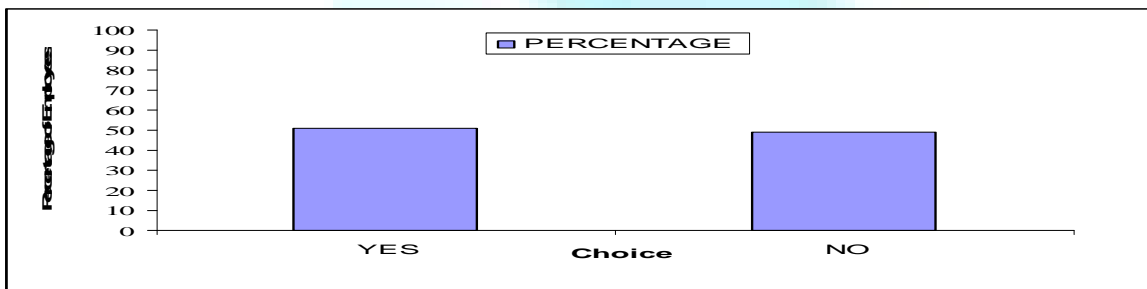
Today, several organizations are providing the stock option to their employees. It means that employees can buy the shares of their organizations but this facility is provided mainly to the senior employees only. In Figure 31, 50.8 percent employees consider that there is provision of stock option for them but 49.2 percent employees state that there is no provision of such facility. Thus, there is fifty- fifty proportion about stock option facility in information technology industry.

TABLE 32 -ADEQUATE STAFF IN ORGANIZATION

CHOICE	YES	NO
NO. OF EMPLOYEES	254	246
PERCENTAGE	50.8	49.2

Source: Primary Survey

FIGURE 32 -ADEQUATE STAFF IN ORGANIZATION



Source: Primary Survey

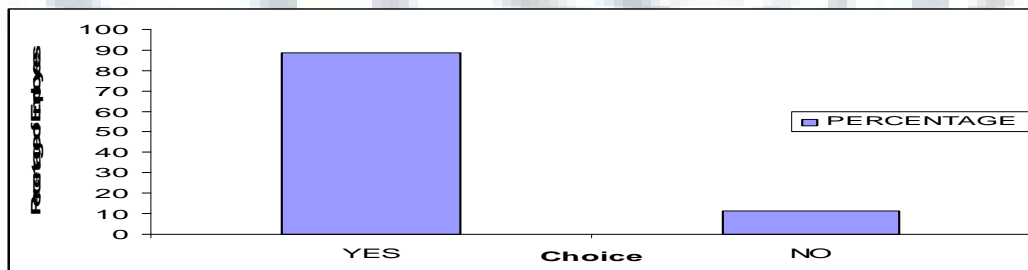
In this survey, 50.8 percent employees state that there are adequate staff members in the organizations but 49.2 percent employees disagreed. There is fifty- fifty ratio of employees who have different opinion regarding adequate staff in organization (Figure 32).

TABLE 33- STRESSFULNESS OF JOB

CHOICE	YES	NO
NO. OF EMPLOYEES	444	56
PERCENTAGE	88.8	11.2

Source: Primary Survey

FIGURE 33- STRESSFULNESS OF JOB



Source: Primary Survey

Although, several welfare facilities and recreational facilities are provided to the employees to reduce their stress, but still 88.8 percent employees confess that it is really a stressful job, just 11.2 percent employees deny that it a stressful job (Figure 33).

SUMMARY AND CONCLUSIONS

- Recruitment, selection, placement, training, performance evaluation, potential appraisal, career planning, feedback and counselling, promotion, transfer, wages and salaries, incentives, employees welfare, social-security, collective-bargaining, trade union, workers participation in management, team-development, organisational development, trade unions, motivation, leadership etc. are the sub-systems of human resource development.
- Human resource development sub-systems must be implemented effectively and be integrated to get maximum benefits.
- Success of information technology industry lies in its knowledgeable, skilled and competent labour-force. Hence, in information technology industry various favourable human resource development practices have been implemented
- In information technology sector, most of the employees are young, technically qualified, urban and male. The participation of women employees and rural workers is relatively lower.
- The monthly income of employees in information technology organisations is very high as well as flexible, which differ from location to location and also depends on size of organisations and skill of employees.
- Data reveals that information technology industry selects its employees through several fair interview and test rounds in organisations, so that they can get skilled and efficient employees.
- Information technology industry is high-tech and dynamic industry, so it provides multi-skill and need based training to all employees employed at any level.
- Majority of employees are satisfied with transfer policy and it is done on the basis of worker's convenience as well as company's requirement.
- Information technology industry pays high wages, compensations, social securities, perks and job security. Provident fund, gratuity, health insurance facilities and compensation in case of major accidents are provided to most of the employees. Employees are highly satisfied with these facilities.
- The working conditions in these organisations are good. The sanitation, ventilation, proper lighting etc are taken care of.
- Many types of recreational facilities - gym, indoor /outdoor games, meditation /yoga classes, library facilities and late night party facilities are provided to employees. Health facilities are also provided to employees.
- Majority of employees said that the top management in information technology sector is very co-operative, friendly, encouraging and inspiring.
- There is no trade union. If there is any type of conflict then it is solved by human resource department and other formal or informal committees.
- Various facilities are provided to female employees to increase their participation ratio in this industry. In these organisations there is not any type of discrimination among male and female employees. In information technology industry all employees are equal and have open communication among them
- Various facilities like medical, transportation, co-operatives, hostel and hospital facilities are provided to employees for the welfare of employees. There is also provision of stock option in some organisations.
- Majority of employees accept that in information technology work is really stressful.

In spite of this, information technology industry is a knowledge-led and highly competitive industry giving more priority to its human resource. Majority of employees are satisfied with the prevailing human resource development practices in information technology industry in India.

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ORGANISATIONAL SUPPORT FOR EMPLOYEES' CAREER MANAGEMENT

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ABSTRACT

This paper helps to study on 'organisational support for employee's career management'. Career management is the combination of structured planning and the active management choice of one's own professional career. This study is proposed to cover career management, organisational support for employee's career management, importance of career management with respect to individuals and organisation's, and also to provide satisfaction and successful career management for its employees.

KEYWORDS

Career, Career management, Career satisfaction, Employee development, Organisational support.

INTRODUCTION

In the earlier days, individuals were not clear in setting their career goals/objectives. Due to this, most of the people didn't give much thought in choosing their professional career. And they were not clear in understanding and finding the best opportunities for their career. This task may be quite difficult when the individual lacks knowledge of career opportunities and/or is not fully aware of their talents and abilities. However, the entire career management process is based on the establishment of defined goals/objectives whether specific or general in nature. Utilizing career assessments may be a critical step in identifying opportunities and career paths that most resonate with someone. The term Career is defined by the Oxford English Dictionary as an individual's "course or progress through life (or a distinct portion of life)". It is usually considered to pertain to remunerative work (and sometimes also formal education).

CAREER MANAGEMENT

Many scholars cite (Ball (1997) Ball, B. (1997) who described Career management as the combination of structured planning and the active management choice of one's own professional career. Career development is the way in which a person's career develops and progresses over time (Arnold, 1997), such as progressing from an entry level position to a senior manager. The outcome of successful career management should include personal fulfillment, work/life balance, goal achievement and financial assurity. This new concept of career management has different meanings for both the individual and the organization (Baruch, 2006; Buckley, Beu, Novicevic, & Sigerstad 2001), bringing forth two approaches to career management, individual career management and organizational career management.

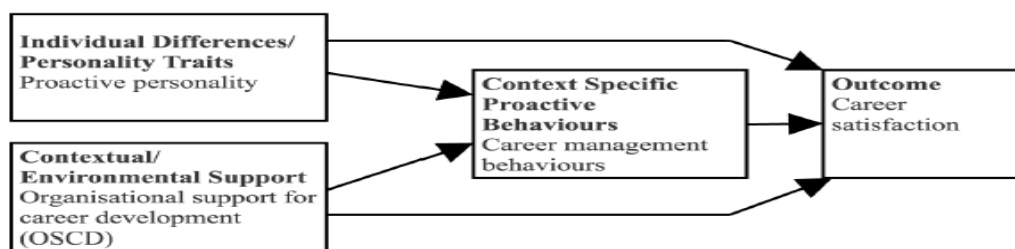
ORGANISATIONAL SUPPORT FOR EMPLOYEE'S CAREER MANAGEMENT

"Belinda Rence Barnett, Lisa Bradley" has published the Article in the year (2007) Volume (12) Issue (7). The Article is titled "**The Impact of organisational support for career development on career satisfaction**". The purpose of the study was to examine the organisational support for employee's career management/development (OSCD). Based on an extended the model of social cognitive career theory (SCCT) and an integrative model of proactive behaviours, the study proposed that career management behaviours would mediate the relationship between OSCD and career satisfaction, and proactive personality and career satisfaction.

DEFINITIONS

"Lent and Brown" (2006) define it as organisational support for career development (OSCD), is also called "organisational career management" or "organisational sponsorship" and refers to the programs, processes and assistance provided by organisations to support and enhance their employee's career success (Ng et al., 2005; Orpen, 1994). The variable has been so named in this study to be consistent with the new supportive and enabling role proposed for organisations, rather than the traditional "command and control" approach taken in the past (Baruch, 2006). Referring to the extended SCCT model (Lent and Brown, 2006), OSCD belongs to a class of environmental support and resources variables that are specifically relevant to the pursuit of an individual's career goals. OSCD comprises formal strategies (including career planning, training and assessment centres) and informal support such as providing mentoring, coaching and networking opportunities (Hall, 2002; London, 1988; Sturges, Guest, Conway, and Davey, 2002).

FIGURE 1 SCCT (SOCIAL COGNITIVE CAREER THEORY) MODEL



Source: Adapted from Crant (2000); Lent and Brown (2006)

In an article by Thomas N. Garavan and Michael Coolahan" (1996) Volume (20) Issue (4) titled "Career mobility in organisations: implications for career development", reviews the literature on career mobility and it considers its implications for career development practices within organisations. The researchers also focus on individualistic and organisational perspectives and identify a range of factors which facilitate or inhibit the mobility process. They also identify a range of career development implications including changing notions about what constitutes a career, the need to take into business issues and the move towards joint career planning.

Garavan (1996) refers to the growing body of literature on the relationship between organisational commitment and career issues and the need to manage the career of an employee in a strategic fashion.

Inglos (1987) found that "the selection for and participation in training and development activities carries powerful symbolic messages within an organisation." Equally, non-selection implies/signals a "dead end" career.

A study was done by Ghulam R. Nabi (2003) Volume (24) Issue (6) on "Situational characteristics and subjective career success: The mediating role of career – enhancing strategies". In this article the researchers examined the role of career-enhancing strategies (CESs) as mediators of the relationship between situation-centered characteristics (e.g. career prospects) and subjective career success. CESs included self-nomination, networking behaviour and consultation with mentors. (SCS) Subjective career success was measured using two criteria, intrinsic job success and perceived career success. The results provided partial support for the mediating role of Career Enhancing Strategies (CES) between situational characteristics and subjective career success. Specific CESs played a mediating role in the relationship between specific situation-centered variables and intrinsic job success. Self-nomination and networking played a mediating role between career prospects and intrinsic job success. Networking also played a mediating role between job security and intrinsic job success. The theoretical and practical implications of these findings are discussed, together with avenues for further research.

Allan P.O. Williams (1979) Volume (8) Issue (4) conducted a study on "Career Development and Employee Participation: Current Trends and Their Implications". The study revealed that Employee participation or industrial democracy represents an area of knowledge and practice which has resulted from the attempts of behavioural scientists, employers, unions and governments, to solve some of the people-based problems at work such as labor turnover, absence from work, resistance to change, strikes, and of their low productivity. In recent years psychologists and others working within personnel departments, consulting firms and academic institutions have been pushing career planning and development as an additional remedy for some of these problems.

Researchers Ronald J. Burke, Mustafa Koyuncu, Lisa Fiksenbaum (2006), Volume (21), and Issue (8) conducted a study entitled "Organisational Practices supporting women's career advancement and their satisfaction and well-being in Turkey". The purpose of this study was to examine the relationship of the perceived presence of organisational practices designed to support women's career advancement and their work attitudes and satisfaction and their psychological well-being.

Marc van Veldhoven and Luc Dorenbosch (2008), Volume (13), and Issue (2) published an article titled "Age, proactivity and career development". The purpose of the study was to shed more light on the role of employee proactivity which includes behaviours that are: (Self starting, action-orientated behaviours aimed at greater organisational effectiveness) in relation to age and career development. It aims to do this in two ways. Firstly, by investigating how age and HR practices for development initiated by the organisation influence proactivity as a career-relevant outcome. Secondly by examining how age, proactivity and HR practices for development influence employee's experiences of career opportunities, wherein proactivity is seen here as a career-relevant predictor.

Warr and Fay (2001) in their study found that employees who take a proactive approach towards different facets of their work are expected to deliver sustained productivity in a fast and dynamic work context in two ways. Namely proactive employees actively engage in solving inefficiencies that arise in the continuously changing work processes (on-the-job proactivity). Similarly proactive employees scan new work environments for developmental needs and seek to learn and acquire new skills and knowledge to ensure their future employability.

A research study was conducted by Ooi Keng Boon in the year (2006) Volume (36) Issue (6) on "HRM and TQM: association with job involvement". The purpose of the study was to examine the perceptions of individual employees on the influence of the eight elements of HRM/TQM (i.e. leadership, training and development, employee engagement or participation, reward and recognition, the customer focus, empowerment, teamwork, and the communication) on employee's job involvement in the six major Malaysian semiconductor manufacturing organisations. According to the authors despite extensive research and voluminous literature on HRM/TQM, very little empirical research has examined the variables chosen by the researchers in their study. Therefore, the hypotheses were developed with the intention of examining this relationship.

Anthony Ang (2002) Volume (14) Issue (3) conducted a study entitled "An eclectic review of multidimensional perspectives of employee involvement". This study addresses employee involvement as a management approach, tracing the concepts, assumptions and roots in which it can be located. It reviews the plethora of typologies based upon which employee involvement programmes implemented in organisations today are founded. It advocates further research to enhance the conceptualization and contextualization of these programmes for practical implementation, as well as the development of a framework which could be generally accepted for their systematic evaluation.

Jane Yarnall (1998) Volume (27) Issue (5) in her study on "Line managers as career developers: rhetoric or reality" along with other researchers asserts that (Hirsh *et al.*, 1995; Liebowitz and Schlossberg, 1981; Mayo, 1991) that for career development to be effective in organisations, line managers need to support the future development of their staff and have the necessary skills to coach and counsel them as appropriate. It is viewed as unlikely that individual employees, however committed, can successfully manage their careers without any support from their manager. Many organisations are also now focusing career programmes on changing attitudes towards the meaning of career development, to one where employees take greater responsibility for their own development. Line managers are needed to play a key role in this culture change through communicating appropriate messages to their staff and providing realistic feedback on future opportunities. Schein (1978) even goes so far as to suggest that the successful implementation of organisational career development programme is wholly dependent on the effort and commitment of the line management group.

Rita Cruise O'Brien (1995) conducted a study on "Employee involvement in performance improvement". This study is based on a research project initiated in 1992, and presents summary findings from qualitative and quantitative research with six major British companies. The original intention was to look at the potential contribution of employee commitment to high quality performance, the difficulties of achieving that commitment and the relationship of the employee contribution to performance improvement. Three particular concepts emerged as pivotal: the distinctive focus on process improvement for generating new forms of interaction at work; the importance of employee tacit knowledge for contributing to process improvement; and a new form of trust based on mutual interest between employees and management as a crucial intermediary variable contributing to commitment.

Audrey Collin (1986) Volume (15) Issue (2) in her study on “**Career Development: The Significance of the Subjective Career**” states that the changing society and troubled economy are making many new demands of work organisations. Therefore human resource managers have to deal with new issues and explore ways of dealing with old ones. One aspect of organisational life which is so affected is career development. A recent review of the latest thinking on it noted some of these new questions and proposed the inclusion of lateral as well as “onward and upward” moves within an accepted view of career development. This article offers an even wider view of career development through its recognition of the significance of the subjective career.

Yehuda Baruch (1996) Volume (1) Issue (1) studied “**Organisational career planning and management techniques and activities in use in high-tech organisations**”. This study is an empirical analysis of organisational career planning and management techniques, activities, programmes and processes that are part of the human resource management role. It focused on the actual use of these techniques and their evaluation by management and employees in 60 high technology organisations in Israel and the UK. The findings illustrate the applications of these techniques, their perceived quality and their estimated necessity.

Researchers Dirk Buyens, Hans Van Dijk & Thomas Dewilde (2008) Volume (24) conducted a study on “**The Aging workforce: perceptions of career ending**”. The purpose of this study was two-fold. The first is to relate the negative image of older workers to stereotype threat and to propose that effective retention management should start by replacing this negative image. The second is to assess the needs, perceptions and preferences of older workers regarding their career-ending.

Jens Rowold (2007) Volume (32) Issue (1) conducted a study “**Multiple effects of human resource development interventions**”. This study aimed to explore the simultaneous impact of employees’ participation in non-technical training, technical training, and coaching on subsequent job performance, job involvement, and job satisfaction.

IMPORTANCE OF CAREER MANAGEMENT FOR INDIVIDUALS AND ORGANISATIONS

Career Management has a significant stake not only for the individual employee but also for the organisation at large. Individual career management is the process whereby a person takes control of and plans his or her career by identifying career-related goals, strengths, and weaknesses and then takes the necessary steps to achieve these self-defined career goals (Orpen, 1994). Self-management activities are the key, including gaining information about one’s self (Kossek & Roberts, 1998; Sturges, Guest, Conway, & Davey, 2002), networking and seeking credit for work successfully completed (Sturges et al., 2002) in order to facilitate developing a career within an organisation.

Conversely, organisational career management describes an organisation’s process for managing the careers of its employees (Orpen, 1994). Organisational career management is defined by Stumpf (1988, p. 33) as “activities and opportunities that organisations sponsor to help ensure they will meet or exceed their future human resource requirements.” Career planning, career paths, employee training and development, job postings, career counseling, outplacement counseling, and mentoring are just some activities that are utilized in organisational career management programs.

Organisational and individual career management are not mutually exclusive, but rather interdependent and complementary (Sturges et al., 2002; Sturges, Conway, Guest, & Liefvooghe 2005). While individuals rely on organisations for career guidance within the organisation, organisations rely on the knowledge and availability of employees to achieve and carry out the organisation’s strategy (Thite, 2001). Research by Verbruggen and colleagues (2007) highlights this interdependence, showing that employees who practice individual career management are more likely to receive career management support from the organisation than those who do not.

The primary difficulty with career management is the differing expectations of employees and their organisations regarding who is responsible for career management. According to Thite (2001), a paradigm shift has occurred in the framework of the career which has caused changes in expectations regarding career management activities. It is important to consider how careers have evolved in order to understand how role expectations in the career management process have changed.

Organisational career management can supply many benefits to both employees and organisations. Not only can it provide opportunities for the individual to develop his or her career, it can support the culture and maintain talent within an organisation. A study by Zaleska and de Menezes (2007), found an individual’s commitment to the organisation increased when involved in career development activities such as job challenge, external training, and coaching and mentoring, except for managerial level employees who likely lack upward mobility due to flattening organisational structures. These results are consistent with prior research by Orpen (1994) who found that employees who get less career help from their organisations have lower career satisfaction. Sturges and colleagues (2005) assert that organisational career management is vital to organisational viability in that it supports the fulfillment of the psychological contract.

THE PSYCHOLOGICAL CONTRACT

The psychological contract is comprised of a non-written beliefs and expectations of reciprocal relationships and obligations between employees and their employing organisation (Rousseau, 1990). The main premise of the psychological contract is that a mutual understanding arises that binds both parties (Rousseau, 2001) such that if an employee believes he or she is obligated to do something for the organisation, the employee believes the organisation owes him or her something in return, such as career development support. Violation of the psychological contract can cause problems with understanding the roles and responsibilities involved in career management (Dabos & Rousseau, 2004).

According to work by Rousseau (2001), the foundation for a psychological contract is often found through pre-employment and recruitment or early in employment via socialisation. Rousseau indicated the individual’s expectations often are minimal initially but then build evolving from one belief to several beliefs. Such beliefs often form when there is incomplete information on behalf of either party, such as when a new recruit does not have all the info about a company or a company does not have all the information about an employee. Rousseau’s (2001) suggests that expectations can differ based on years of experience in a job but that some kind of mutual understanding is necessary both parties to achieve their goals (Dabos & Rousseau, 2004). The evolution of the psychological contract is important to reflect the new employment relationship.

Establishment and maintenance of the psychological contract is crucial as it is linked to employee organisational commitment and turnover intentions. The psychological contract has been shown to mediate the relationships between informal career help and affective commitment, informal career help and job performance, and informal career help and individual career management (Sturges et al., 2005). Therefore, fulfillment of the psychological contract could increase an employee’s commitment to the organisation and his or her performance as well as keep the individual from seeking employment outside of the organisation.

Both informal and formal career help can be used to fulfill the psychological contract, however, employees tend to prefer informal help (Sturges et al., 2002) including things such as being introduced to influential people. Informal career management is associated with higher affective organisational commitment (Hackett, Bycio & Hausdorf, 1994) and employee’s ability to self-manage their careers through networking and mentoring (Sturges et al., 2005). The ability to self-manage one’s career can help employees increase their visibility and can lead to increased opportunities for those employees to receive formal education including training (Sturges et al., 2002). When employees self-manage their careers, the organisation is likely to give back to employees in terms of career help, creating a win-win situation for those employees and organisation (Sturges et al., 2002, 2005; Verbruggen et al., 2007).

The psychological contract is inherently about roles and responsibilities. Therefore, it is important to consider what the roles and responsibilities are for each party involved.

CONCLUSION

In this paper the researcher has attempted to collate the various research studies relating to organisational support for employee’s career management. In the process the researcher has conceptually defined some of the important terms related to the area of research investigation namely career management. Through this paper the researcher has also identified some of the important variables that contribute to effective career management strategies from both the individual employee perspective and the organisational perspective. This paper has enabled the researcher to identify some of the gaps in research in the area of career

management, especially from the context of career management from the Indian cultural perspective. As the review undertaken by the researcher suggests, most of the studies are from the Western world. Therefore this area of study which will focus on career management processes in India will definitely throw light on this emerging discipline.

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A STUDY ON SMALL INVESTOR'S PREFERENCE TOWARDS MUTUAL FUNDS IN SALEM DISTRICT, TAMIL NADU

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ABSTRACT

The mutual fund is the most suitable investment for the common man as it offers an opportunity to invest in a diversified, professionally managed basket of securities at a relatively low cost. An investor commits the present funds to one or more assets to be held for some time in expectation of some future return in terms of interest (revenue) or capital gain. The objectives of the study are to identify the perceptual factors which influence the investors to invest in mutual funds; to analyse the Motivational factors of small investors; to analyse the preference of small investors on selected Mutual Fund; to analyse the problems of small investors on Mutual Fund. The present study mainly concentrates on small investor's preference of selected Mutual Funds such as SBI, Reliance, ICICI, ING Vysya, LIC, and UTI. It does not cover other Mutual Funds, which has offered to the public. Licker Scale, Kendall's Co-Efficient of Concordance Test, Chi-square Test, and Spearman's Rank Correlation Co-Efficient tests are used for analysis of this study. The awareness on investment on Mutual Fund should be communicated among the rural investors through road show, small campaign and other programmed. The Mutual Fund should be great transparency, prudent accounting norms, less transaction cost, low management fees. It is very attractive between sub urban and rural areas, it have innovative schemes and efficient administrative system.

KEYWORDS

Capital Gain, Capital Market, Investors, Mutual Fund, Transaction Cost.

INTRODUCTION

A Mutual Fund is a trust that pools the savings of a number of investors who share a common financial goal. The money thus collected is then invested in capital market instruments such as shares, debentures and other securities. The income earned through these investments and the capital appreciation realized is shared by its unit holders in proportion to the number of units owned by them. Thus a Mutual Fund is the most suitable investment for the common man as it offers an opportunity to invest in a diversified, professionally managed basket of securities at a relatively low cost.

REVIEW OF LITERATURE

Mutual Fund sector poised growth had stated that the Indian Mutual Funds business stated to grow. Though there are many challenges that need to be addressed to increase net mobilization of funds in sector. She concludes that the Indian Securities market has bottomed out and the coming year could only show an up sharing (Vimalavasan, 2002). The SEBI should impose some guidelines suggestion her on the Mutual Funds. When the Net Asset Value is below par to AMC fees should be paid to the sponsor for the period. He concluded that all advertisement of Mutual Funds should disclose the high and lows (on a yearly basis) of the fund and the month and year when the NAV was below par (Rangarajan, 2001). The growth, both in terms of size and choice in the Mutual Fund industry among emerging markets has been impressive however; Mutual Fund research emerging markets hardly exist. In particular area the author surveys the relative importance of factors considered important in the selection of Mutual Funds by financial advisor. He concluded that the impending liberalization of financial markets in the developing world, his findings would assist those international Funds that are considering expand their operations in to these emerging markets (Balaramasamy, 2003). The Mutual Funds well small in size, few in number and were limited to simple concepts like equities, bonds and balanced portfolios. The Mutual Fund industries or securities grew enormously in all measures from number of assets. It increases the profits of investors and fund manager salaries. At last he conclude that the place of investor's assets placed in their care at the same level as their own profits will be remembered for many decades to come better in future (Robert B.Gordon, 2002). Assets under Management of the industry has given a negative trend but currently the fund industry rose, albeit marginally. Mutual Funds have been big traders at the bourses. This is evident from the increased volumes logged in the Bombay Stock Exchange by Mutual Funds ,That he concluded that the Mutual Funds are the typically are debt Funds with an Equity Kicker added to it. Investors feel that it provides them with valuation as against investing according to the NAV after the close of the IFO (Veenavenugopal, 2006). There is a latent demand from Mutual Funds for commercial papers and certificate of deposits there are typically short-term instruments and they fit the overall maturity profile. They demands for commercial papers, however, falter when the Mutual Funds are hard pressed for cash particularly during the time of advanced tax out flows or tight liquidity and the high call rates are a deterrent to the issuance of commercial papers at present (Shobhakannan and Radhika Menon, 2007). The consumer behavior from the marketing world and financial economics has brought together to the surface an exciting area for study and research. The realization that this is a serious subject is analysis seem to treat financial markets as an aggregate of statistical observation. A rich view of research waits that sophisticated understanding of how financial markets are also affected by the financial behavior. She concludes that the Mutual Funds which has become an important portal for the small investors, is also influenced by their financial behavior. Hence, it examines the related aspects of the fund selection behavior of individual investors (Kavitha ranganathan, 2006). Bankers admit that despite their conservative approach to investments, it increases credit for double; a rate paper in the wake of triple "a" rated papers thinning out from the market. Bankers, market participants always change their yield maximization strategies in keeping with prevailing market conditions at any given time (Rukmani Vishwanth, 2003). The investors invested in a Mutual Fund to provide a Mutual Fund Identification Number (MIN) or apply for one, the association of Mutual Fund in India. In keeping with the securities and Exchange Board of India's norm, Mutual Fund Investor would be allotted the MIN after verification of identity. He conclude that the Mutual Funds have appointed CDSL ventures ltd; a wholly owned subsidiary of central depository serves ltd; to collect documents relating to identity and address of investors and for record keeping (Arun, 2006). The estimate annual trading costs for a sample of equity Mutual Funds and find these costs are large and exhibit substantial cross sectional variation. And also the analysis that trading costs averaged 0.78% of Fund assets per year and haven inter-qualities range of 0.59% trading costs, like expense ratios are negatively related to fund returns (John, 1999). The Indian Mutual Fund industry has drawn lessons from the FMCG sector. The fund houses just like the corporate managers of FMCG companies, have introduced new products that are minor variants to the existing ones. Fund houses attribute the introduction of such plans to "investor fatigue". He concludes that the fund houses incur additional expenses to market the new product which further reduces the Net Asset Value (Venketesh, 2004). The popularity of Mutual Funds traditionally is attributed to the fact that they are professionally managed, small available only to large investors and that investor can take advantage of lower transaction costs, primarily in that consider three advantages of investing in Mutual Funds: Diversification benefit, transaction costs, an investors need for liquidity and the risk sharing benefits of investing in Mutual Fund. Finally he conclude that Mutual Fund have the redemption fees may be more successful than front end load fees at club redemption to cash flows and more likely to rely on load fees to dissuade redemption because they hold more of the investments (Tarun chrodia, 1993). The field of strategic management or Business policy has as a primary mission the analysis of diversity. Recently, the field has shifted from an emphasis on the diversity of industry to firm level differences. Finally he concluded that the evaluation of competitive position is driven by market position and external

relationships that organizational commitments and resource allocation do not exert an independent effect of the tracery (Daniel A. Levinthal, 1994). With the reforms of economy, reforms of industrial policy, reforms of public sector and reforms of financial sector, the economy has been opened up and many developments have been taking place in the Indian money market and capital market. In order to help the small investors, mutual fund industry has come to occupy an important place. She concluded that, the main objective of this paper is to examine the importance and growth of mutual funds and evaluate the operations of mutual funds and suggest some measures to make it a successful scheme in India (Nalini Prava Tripathy, 1994). A Mutual Fund motivates small and big investors to entrust their savings to it so that these are professionally employed ensuring their savings to it so that these are professionally employed ensuring good return. A large number of investors have small savings with them. They can at the most buy shares of one or two companies. When small savings are pooled and entrusted to mutual funds then these can be used to buy the chips where regular returns and capital appreciation are ensured. She concluded that the Mutual fund is an American concept (T.Saraswathi, 2006).

NEED FOR THE STUDY

The term investment is used to describe the process of investing money in shares, debentures, fixed deposits, gold, real assets, life policies, mutual funds and money market instruments. By investing, an investor commits the present funds to one or more assets to be held for some time in expectation of some future return in terms of interest (revenue) or capital gain. Individual investors consider a number of factors before deciding to invest their funds in various securities involving varying degrees of risk and return. In short, the investment decision making process is a multi-faceted subject to change over a period of time. An attempt has been made in this study to identify the perceptual factors which influence the investors to invest in mutual funds. There are a number of investment opportunities available to an investor. Each of these investments has its own risk and return features. The proverb "never put all the eggs in the same basket" guides the investor to diversify the risk. Diversification refers to the process whereby an investor invests his funds in more than one investment opportunity. All investors may not be in a position to undertake fundamental and technical analysis before they decide about their investment options. Instead of investing directly, the investors particularly, small investors may go for indirect investment through the mutual funds. Instead of becoming the share holder or bondholder of a company, these investors would become the unit holders of mutual funds. In almost all the capital markets throughout the world, mutual funds have gained a significant position. The mutual fund industry plays a significant role in the development of the economy as well. Its buoyant growth leads to lower intermediation costs, more efficient financial markets, and increased vibrancy of the capital markets and higher local ownership of financial assets.

OBJECTIVES OF THE STUDY

- To identify the perceptual factors which influence the investors to invest in mutual funds.
- To study the origin and growth of industry in India.
- To analyses the Motivational factors of small investors.
- To analyses the preference of small investors on selected Mutual Fund.
- To analyses the problems of small investors on Mutual Fund.
- To offer suitable suggestions based on findings.

SCOPE OF THE STUDY

The present study mainly concentrates on small investor's preference of selected Mutual Funds such as SBI, Reliance, ICICI, ING Vysya, LIC, and UTI. It does not cover other Mutual Funds, which has offered to the public.

LIMITATIONS OF THE STUDY

- The present study mainly based on the data which were collected from small investors in Salem District.
- As small investors they were not maintaining any books of accounts for investment on Mutual Funds.
- Hence the data furnished by the Investor, are subject to bias. Further, the finding of the study may not applicable to other type of similar studies.

RESEARCH METHODOLOGY

RESEARCH DESIGN: Research design is in fact the conceptual structure with in which the research is conducted Bernard Philips has described the research design as a "Blue print for the collection, Measurement and analysis of data". The present study based on descriptive research which relates to the demographic and attitude of the respondents on analyses to draw the specific finding.

SAMPLING DESIGN: A sample design is a definite plan for obtaining a sample from the sample frame it refers to the technique or the procedure. The researcher would adopt in selecting some sampling units from which inferences about the population is a drawn.

POPULATION: Population refers to the total number of individual living in geographical area. In the study area there are 600 investors were identified as investors of mutual fund. Hence, the population consists of 600 people in the research area.

SAMPLE TECHNIQUE: For selecting the sample the researcher has followed that Probability sampling technique, in Probability sampling technique sample in the Population.

AREA OF COLLECTING DATA:

Blocks	Number of Investors	Sample Selected 20%
Salem	300	60
Attur	150	30
Mettur	100	20
Omalur	50	10
Total	600	120

SAMPLE SIZE: The number of cases selected from the population to use as the sample. The Present study consist of 120 samples, the total investors on the study area were 600 out of which 120 samples (20% of the population) have been selected on the basis of Area sampling technique.

SAMPLE UNIT: Sample unit refers to the units into which an aggregate is divided for the purpose of sampling, each unit being regarded as individual and indivisible when the selection is made. It is a collection of each item from different types Mutual Funds. In the present study selected small investors of Mutual Fund investment at Salem District are considered as a sample unit.

DATA COLLECTION: Primary data is one which is collected by the investigator himself for the purpose of a specific inquiry or study. In this study interview schedule has been used to collect the Primary Data. The secondary data were collected from the various journals and magazines and internet websites relates to Mutual funds such as SBI, RELIANCE, ICICI, ING VYSIA, LIC and UTI.

ANALYTICAL TOOLS

- **Licker Scale:** Licker Scale is used to study the opinion of the Mutual Fund Investors regarding the problems of Mutual Fund investment. It has been given in the following method:
 - Strongly Agree-5, Agree-4, No opinion -3, Disagree -2, Strongly Disagree-1
- **Kendall's Co-Efficient of Concordance Test:** Kendall's co-efficient of concordance test is used to compare the ranking pattern of the Mutual Fund investor on various problem faced by the formula used:

$$S = (R_j - R_j)^2$$

R_j = Ranks

R_j = Average of Ranks

K = Number of Category

R = Number of Ranks

- **Chi-square Test:** It difference the two variables of hypotheses is accepted or null hypothesis rejected.

Formula : $[(O-E)^2/E]$

O refers to : Observed Frequency.

E refers to : Expected Frequency

Expected Value : Row total * Column Total / Grand Total

Degree of Freedom : (Row-1) (Column-1)

Level of Significance : 0.05%

- **Spearman's Rank Correlation Co-Efficient**

Spearman's Rank Correlation Co-efficient value is calculated as:

$$R = 1 - \frac{6\sum d^2}{N(N^2 - 1)}$$

N (n2-n)

D= difference between the two ranks

N= number of pointed observations.

DATA ANALYSIS AND INTERPRETATION

TABLE NO.1: AGE OF MUTUAL FUND INVESTORS

Age	No. of Investors	Percentage
Up to 30	21	17
31- 40	32	28
41 - 50	40	33
Above 50	27	22
Total	120	100

Source: Primary Data

The age is length of time that a person has lived in the world. It should be influence the human culture and investment decision. It can be making different thinking of the investment. It is stated in Table 5.1 that among 120 investors a majority of investors 33% are in the group of 41-50 yrs, 28% investors are in the age group of 31-40 yrs, 22% investors are in the age group of above 50 and only 17% investors are in the age group of below 30. Hence, it concludes that the majority of investors are in the age group of 41-50 yrs.

TABLE NO.2: GENDER OF THE MUTUAL FUND INVESTORS

Gender	No. of investors	Percentage
Male	83	69
Female	37	31
Total	120	100

Source: Primary Data

Gender has been refers to the society constructed roles, behaviors, activities, and attributes that a given society considers appropriate for men and women. It is inferred in Table No.2 that among 120 investors represented 69% are male and only 31% of investors are female. Hence it concludes that the majority of the investors are belonging to the male investors.

TABLE NO.3: EDUCATIONAL STATUS OF MUTUAL FUND INVESTORS

Educational status	No. of investors	Percentage
Schooling	42	35
Diploma	19	16
Degree	30	25
Professional	29	24
Total	120	100

Source: Primary Data

The education of an individual human beings at birth and continues throughout life. It influence throughout the day to day life and their investments for future. It is clear from Table No.3 that among 120 sample Investors, a majority of investors 35% are in Schooling, 25% Investors are in Degree, 24% Investors are in Professional and Only 16% of Investors are in the Diploma. Hence it concludes that a majority of the Investors are belonging to Schooling.

TABLE NO.4: RESIDENTIAL STATUS OF THE MUTUAL FUND INVESTORS

Residential status	No. of investors	Percentage
Rural	62	52
Urban	58	48
Total	120	100

Source: Primary Data

Residence is a building typically lived in by one or more people. The word residence may also refer to a living area of the human beings especially of their status and comfortableness in the society. It is referred from the Table No.4 that among 120 Investors, a majority of 52% of Investors are in rural area and only, 48% of Investors are in urban area. Hence, it concludes that a majority of the investors are lived in rural area.

TABLE NO.5: OCCUPATIONAL STATUS OF THE MUTUAL FUND INVESTORS

Occupational Status	No. Of Investors	Percentage
Own Business	38	32
Govt. Sector	18	15
Private Sector	37	31
Pensioners	27	22
Total	120	100

Source: Primary Data

In a commercial settings Occupational status conceives of a productive activity, generally with the intention of creating profits and Investors contributes the investment for the future. It is conclude from Table No.5 that among 120 investors, a majority 32% of Investors are doing Own business, 31% of investors are Private Sector Employees,22% of investors are in Pensioners and Only 15% of investors are Government Employees. Hence it indicates that a majority of investors are doing Own Business.

TABLE NO.6: MONTHLY INCOME STATUS OF MUTUAL FUND INVESTORS

Monthly Income	No. Of Investors	Percentage
Up to 5000	9	8
5001 to 10000	43	36
10001 to 15000	42	35
Above15000	26	21
Total	120	100

Source: Primary Data

Income generally refers; it is the money that is received as a result of the normal business activities of an individual or a business person. Income is increases in economic benefits during the life period of human beings. It is inferred that Table No.6 among 120 Investors. The majority 36% of the Investors 5001 to 10000, 35% of the Investors are earning 10001 to 15000, 21% of the Investors are earning above 15000, and only 8% of Investors earning monthly Up to 5000. Hence it indicates that the majority of the Investors are earning 5001 to 10000.

TABLE NO.7: INVESTOR'S INVESTMENT IN MUTUAL FUND

Name of Mutual Fund	No. of Investors	Percentage
SBI	21	18
Reliance	30	25
ICICI	19	16
ING Vysya	23	19
LIC	20	16
UTI	7	6
Total	120	100

Source: Primary Data

Investment is a term with several closely related to future saving of the investors it create a safety for their money worth. It is given in Table No.7 that among 120 Investors. A majority 25% of Investors are invest in Reliance Scheme, 19% of Investors are invest in the ING Vysya Scheme, 18% of Investors are Invest in the SBI Scheme, 16% of Investors in LIC Scheme and ICICI Scheme and Only 6% of Investors are Invested in UTI Scheme, Hence it conclude that the majority of investors Invested in Reliance Scheme.

TABLE NO.8: PRESENT INVESTMENT IN MUTUAL FUND OF THE INVESTORS

Present Position	No. of Investors	Percentage
Up to 5000	3	2
5001 to 10000	56	47
10001 to 15000	22	18
Above 15000	39	33
Total	120	100

Source: Primary Data

Present investment is important for the every investor because of this is clarifying their current position of the investment. The Table No.8 clearly inferred among 120 Investors, 47% of investors are invested as 5001 to 10000, 33% of investors are invested as Above 15000. 18% of Investors are invested at 10001 to 15000 and only, 2% of investors are invested up to 5000. Hence, it concludes that the majority of Investors are investing at 5001 – 10000.

TABLE NO.9: INVESTORS INVESTED IN OTHER INVESTMENTS

Other Investment	No. of Investors	Percentage
Yes	62	52
No	58	48
Total	120	100

Source: Primary Data

The Investor can be invested in Other Securities for their future earnings and the balancing the losses from the Mutual Fund Investment. It is conclude the Table No.9 that among 120 Investors, there is 52% Investors are have been Other Investments and Shares and only 42% investors have not other securities. Hence it inferred that the 52% of Investors have been other securities for their Investment.

TABLE NO.10: INVESTOR'S INVOLVE IN MUTUAL FUND INVESTMENT

Duration	No. of Investors	Percentage
More than 1 yr	99	83
Up to one year	21	17
Total	120	100

Source: Primary Data

Duration is an amount of time or a particular interval time of investment, it may describe as long and short period. It is evident that out of 120 Investors Mostly 99% of Investors using Mutual Fund Investment more than one year and only, 21 % of the Investors are using the Mutual Fund investment up to one year. Hence, it indicates that the investors can be well known about the Mutual Fund.

TABLE NO.11: MODE OF PURCHASE IN MUTUAL FUND

Mode of Purchase	No. of Investors	Percentage
Direct	22	18
Through Broker	98	82
Total	120	100

Source: Primary Data

Purchase is a commercial activity between buyer and seller; the buyer should be getting their services from different modes it also applicable for the investment. It could be observed from Table No.11 that out of 120 Investors mostly 82% of Investors are buying Mutual Fund through brokers and only, 18% of Investors are buying Mutual Fund directly. Hence it indicates that the majority of the Investors are buyer from the broker.

TABLE NO.12 (A): REASON FOR CHOOSING THE MUTUAL FUND INVESTMENT AVERAGE ANALYSIS

Factors	Rank					Total
	1	2	3	4	5	
Safety	27 (23%)	70 (58%)	18 (15%)	2 (2%)	3 (2%)	120 (100%)
Good income	80 (67%)	12 (10%)	23 (19%)	4 (3%)	1 (1%)	120 (100%)
Easy liquidity	1 (1%)	17 (14%)	9 (8%)	47 (39%)	46 (38%)	120 (100%)
Low risk	9 (8%)	19 (16%)	67 (55%)	11 (9%)	14 (12%)	120 (100%)
Tax Concession	3 (3%)	2 (2%)	3 (3%)	56 (46%)	56 (46%)	120 (100%)

Source: Primary Data

An average of a sample Investors data set refers to a measure of the expected value of the investors. It is clear from Table No.12 (a) that among 120 Investors 58% of the investors gave second rank to the reason of Safety for purchase Mutual Fund. The reason of Good Income got First rank of 67% of Mutual Fund Investment. 55% of Investors gave Third rank to the reason of Low risk, the reason of Easy liquidity got Fourth rank of 39% of Mutual Fund Investment. 46% of Investors gave a Fifth rank to the reason of Tax Concession of Mutual Fund Investments.

TABLE NO.12 (B): FACTOR FOR CHOOSING THE MUTUAL FUND

Factor	Rank					Total	Score	Average	Rank
	1	2	3	4	5				
Safety	27	70	18	2	3	120	476	3.9	3
Good Income	80	12	23	4	1	120	526	4.3	1
Easy liquidity	1	17	9	47	46	120	240	2	4
Low risk	9	19	67	11	14	120	358	2.9	2
Tax concession	3	2	3	56	56	120	200	1.6	5

Source: Primary Data

It could be seen from Table No.12 (b) that Good Income was the Top most reason for selecting the Mutual Fund. The Low risk of investment facility was ranked the Next. The Safety of Investment got the third position according to Garnet ranking result. The Easy liquidity of investment was the Fourth important reason as pointed out by the investors. In the views of the sample investors have tax concession it placed last. The investors classified on the basis of their Investment and Rank had presented in the above Table No.12.

TABLE NO.13: SELECTING PARTICULAR SCHEME OF MUTUAL FUND

Reasons	No. of Investors	Percentage
Fast growth	13	11
High return	27	23
Recommendation of Brokers	55	46
Attractive advertisement	25	20
Total	120	100

Source: Primary Data

Selection of scheme is also called as Decision taken by Investor. Table No.13 defined that out of 120 Investors Mostly 46% Investors selecting the Mutual Fund by way of Recommendation of brokers, 23% of Investors selecting the Mutual Fund of their High returns, 20% of investors selecting the Mutual Fund of their Attractive Advertisement and Only, 11% of Investors are selecting Mutual Fund of Fast growth. Hence, it conclude that the mostly Investor selecting Mutual Fund for their Recommendation of Brokers.

TABLE NO. 14: THE GROWTH RATE IN MUTUAL FUND INVESTMENT OF INVESTORS

Growth Rate	No. of Investors	Percentage
Up to 25%	9	8
25% to 50%	16	13
50% to 75%	35	29
Above 75%	60	50
Total	120	100

Source: Primary Data

An investor's objective is Growth of their Investment, it considered at all Investors Investment. Mutual Fund Growth is achieved when the Market Value increases, it causes the Fund's Net Asset Value of Investors. It could be observed from Table No.14 that out of 120 Investors mostly 50% of Investors getting growth of Above 75%, the growth of 50% to 75% are getting 29% percentage of Investors, 13% of investors are getting 25% to 50% of growth in Investment and Only, 8% of investors are earn Up to 25%. Hence it indicates that the majority of investors are mostly getting earning of above 75%.

TABLE NO.15: VARIOUS PROBLEMS OF MUTUAL FUND INVESTMENT

Opinion	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree	Intensive value	Mean	RANK
Less Liquidity	44*5 220	61*4 244	10*3 30	3*3 9	3*2 6	502	4.18	1
Lack in Period	24*5 120	31*4 124	44*3 132	15*2 30	5*1 5	411	3.42	3
Difficult to select	30*5 150	31*4 124	36*3 108	20*2 40	3*1 3	425	3.54	2
Slow Growth	11*5 55	24*4 96	34*3 102	30*2 60	20*1 20	333	2.77	4
Too Many Formality	13*5 65	12*4 48	20*3 60	36*2 72	38*1 38	283	2.35	5
Low Aware	7*5 35	6*4 24	22*3 66	36*2 72	41*1 41	238	1.98	6

Source: Primary Data

Investors have some various problems; it is an obstacle which makes it difficult to achieve desired goal, objectives or purpose. It refers to a situation condition or issue that is yet resolved. It could be seen from Table No.15 that Less liquidity was the Top most Problem for invest in the Mutual Fund. The difficult to select of investment facility was ranked the Next Problem. The Lack in Period got the third position according to Problem ranking result. The Slowly gradual growth of investment was the Fourth important Problem as pointed out by the investors. In the views of the sample investors have too many formalities it placed Fifth rank, and only, Investors selected the Low awareness is last and least rank.

MOTIVATIONAL FACTORS AND OTHER VARIABLES

The cross table analysis should be easy to knowing the difference of the investor’s mentality.

TABLE NO.16: AGE AND MOTIVATIONAL FACTORS

Factors	AGE							
	Up To 30		31 to 40		41 to 50		Above 50	
	Mean score	Rank	Mean score	Rank	Mean score	Rank	Mean score	Rank
Safety	4.14	2	3.65	2	2.8	3	4.18	2
Income	4.28	1	4.37	1	4.5	1	4.22	1
liquidity	2.42	4	2.09	4	1.9	4	1.77	4
Low risk	2.42	3	2.65	3	2.97	2	3.14	3
Tax concession	1.66	5	1.37	5	1.57	5	1.77	5

Source: Primary Data

The age and Motivational factor analysis are making difference idea between the difference ages of Mutual Fund Investors. It is evident from Table No.16 that all categories of Investor ranked the Motivational Factor “Good Income” as their First and foremost motivational factor for investives their money in Mutual Funds. The motivational factor of “Safety” got Second rank from all categories except the investors belong to the Age group of 41-50. The motivational factor “Tax Concession” secured Fifth rank from all categories of investors.

KENDAL’S TEST BETWEEN THE AGE OF INVESTORS AND THE MOTIVATIONAL FACTORS OF THE MUTUAL FUND INVESTMENT

Kendal’s hypotheses are formulated to the test the ranking pattern of investor age and motivational factors of the Mutual Fund investment.

H₀: The different age of investors in Mutual Fund investment do not rank the Motivational Factor similarly.

H₁: The different age of investors of Mutual Fund investment rank the Motivational Factor similarly.

Since, the calculated value S (135.04) is greater than the Kendall’s coefficient Table value (88.4), the null hypotheses are rejected. Hence it concludes that the different age of investors of Mutual Fund investment rank the Motivational Factors.

TABLE NO.17: GENDER AND MOTIVATIONAL FACTORS

FACTOR	GENDER			
	Male		Female	
	Mean Score	Rank	Mean Score	Rank
Safety	4.01	2	5.29	2
Income	4.36	1	6.03	1
liquidity	2.09	4	2.62	5
Low risk	2.93	3	4.22	3
Tax concession	1.54	5	2.48	4

Source: Primary Data

The gender of human is two methods it should be have different ideas, different taste of living, and also using different type of culture. Table No.17 disclosed that the Motivational Factor “Good Income” was the Foremost Factor that had Motivated Investors who had invested in Mutual Funds by both Male and Female investors, The “Safety” is the Second Motivational Factor that had induced the investors to invest in Mutual Fund, The “Tax Concession” was Last and Least important factor for the Male Investor. But the Female Investor selected as the” Liquidity” to last and least Factor for their Investment.

Spearman’s Rank Correlation Co-efficient Test for between the Genders of Mutual Fund investors and the Motivational Factors for the Investment:

Spearman’s Rank Correlation Co-efficient Value for the ranks given by the two categories of investors was calculated by using the formula:

$$R = 1 - \frac{6sd^2}{N(N^2 - 1)}$$

N (n2-n)

D = difference between the two ranks.

N = number of pointed observations.

The rank correlation co-efficient value of 0.8 shows a positive correlation in the ranking pattern of the two categories of investors.

TABLE NO.18: TYPES AND MOTIVATIONAL FACTORS IN MUTUAL FUNDS INVESTMENT

FACTOR	TYPES OF MUTUAL FUND									
	SBI		RELIANCE		ICICI		ING VYSYA		LIC & UTI	
	Mean score	Rank	Mean score	Rank	Mean score	Rank	Mean score	Rank	Mean score	Rank
Safety	3.80	1	4.03	2	4.9	1	3.79	2	4.5	1
Income	4.28	2	4.20	1	3.1	3	4.15	1	3.28	3
liquidity	2.47	4	2.31	4	2	4	1.89	4	2	4
Low Risk	2.57	3	2.75	3	3.2	2	3.36	3	3.85	2
Tax Concession	2	5	1.75	5	1.5	5	1.36	5	1.28	5

Source: Primary Data

The scheme is the important for every Investment it should be easy to select their future investment of the investors. The cross table should be analysis the particular scheme motivational factors of the investors. Table No.18 shows that the different type of Mutual Fund influences the Motivational Factors. The first and foremost factor of investors is Safety but whereas Income also getting the First Motivational Factor for the Investors, The Second Rank goes to the Low risk of the Motivational Factor of the Mutual Fund Investors. The Last and Least Motivational Factor considered by the Investors as Tax Concession.

KENDAL'S TEST BETWEEN THE TYPES OF MUTUAL FUND AND THE MOTIVATIONAL FACTORS OF THE MUTUAL FUND INVESTMENT

Kendal's hypotheses are formulated to the test the ranking pattern of different types of Mutual Fund and motivational factors of the Mutual Fund investment.

H₀: Ranking the Motivational Factors by the different types of Mutual Fund does not differ significantly.

H₁: Ranking the Motivational Factors by the different types of Mutual Fund differ significantly.

Since, the calculated value S (218) is greater than the Kendall's co-efficient Table value (112.3), the null hypotheses are rejected. Hence it concludes that the different types of Mutual Fund investment rank the Motivational Factors.

PROBLEMS OF MUTUAL FUND INVESTMENT AND OTHER VARIABLES

The cross table analysis should know the investors problems between the different sample investors.

TABLE NO.19: EDUCATION AND PROBLEMS OF THE INVESTORS

Problem	Educational Status of Investors							
	Up to School		Diploma		Degree		Professional	
	Mean Score	Rank	Mean Score	Rank	Mean Score	Rank	Mean Score	Rank
Less liquidity	3.66	3	4.2	1	3.9	1	4.3	1
Lack of period	4.33	1	3.36	3	3.73	2	3.41	2
Difficult to select	3.69	2	3.35	2	3.26	3	3.31	3
Slow growth	2.73	4	3.21	4	2.7	5	2.79	4
Too many formality	2	6	2.10	5	2.7	4	2.58	5
Lack of aware	2.09	5	1.84	6	2.2	6	2.03	6

Source: Primary Data

The educational factor is important for every human being it encourage the knowledge about the investment but it also make some problems of the investment. The table no.19 disclose that the Problem of Mutual Fund Investment, the First and Foremost Rank goes to the Less Liquidity but same category Rank Pointed the Lack of Period, the Second Rank Pointed to the Difficult to Select and also same Problem get the Third Rank, The majority of investors suggested the Last and Least Problem should be Lack of Awareness between the Investors.

KENDAL'S TEST BETWEEN THE EDUCATIONAL STATUS OF INVESTORS AND THE PROBLEMS OF THE MUTUAL FUND INVESTMENT

Kendal's hypotheses are formulated to the test the ranking pattern of educational status of investors and motivational factors of the Mutual Fund investment.

H₀: The different types of educational status of investors don't rank the problem similarly.

H₁: The different types of educational status of investors rank the problems similarly.

Since, the calculated value S (234) is greater than the Kendall's co-efficient Table value (143.3), the null hypotheses are rejected. Hence it concludes that the different types of educational status of investors rank the Problem of Mutual Fund investment.

TABLE NO.20: RESIDENCE AND PROBLEMS OF INVESTORS

PROBLEMS	RESIDENCE OF INVESTORS			
	Rural		Urban	
	Mean Score	Rank	Mean Score	Rank
Less liquidity	4.27	1	4.17	1
Lack of period	2.59	4	3.44	2
Difficult to select	3.77	2	3.32	3
Slow growth	2.77	3	2.86	4
Too many formality	2.38	5	1.86	6
Lack of awareness	2.20	6	2.34	5

Source: Primary Data

The residence is important for every human it should be conformed their living status and culture modernization. It could be understood from Table No.20 the investors analysis their problem of Mutual Fund Investment. The First Rank awarded to the Less Liquidity, the 2nd Rank pointed to the Difficult to Select the Scheme of Investment but whereas same category getting the 3rd Rank, The last and Least Rank goes to the Lack of awareness but the urban area investors awarded the Fifth Rank of the Investors Problems.

SPEARMAN'S RANK CORRELATION CO-EFFICIENT TEST FOR BETWEEN THE RESIDENCE OF MUTUAL FUND INVESTORS AND THE PROBLEM OF MUTUAL FUND INVESTMENT

Spearman's Rank Correlation Co-efficient Value for the ranks given by the two categories of investors was calculated by using the formula:

$$R = 1 - \frac{6sd^2}{N(N^2 - 1)}$$

N (n2-n)

D = difference between the two ranks.

N = number of pointed observations.

The rank correlation co-efficient value of 0.7 shows a positive correlation in the ranking pattern of the two categories of investors.

TABLE NO.21: TYPES OF MUTUAL FUND AND THE PROBLEMS OF INVESTORS

PROBLEMS	TYPES OF MUTUAL FUND									
	SBI		RELIANCE		ICICI		ING VYSYA		LIC & UTI	
	Mean score	Rank	Mean score	Rank	Mean score	Rank	Mean score	Rank	Mean score	Rank
Less Liquidity	3.33	3	3.03	4	3.9	2	3.83	1	3.73	2
Lack of Period	4.38	1	3.3	3	2.85	4	3.5	3	3.84	1
Difficult to Select	3.66	2	4.2	1	4.5	1	3.54	2	3.2	3
Slow Growth	3.19	4	2.4	5	1.7	5	2.7	4	2.7	4
Too Many Formality	2.47	5	4.06	2	1.6	6	2.58	5	2.52	6
Lack of Awareness	1.66	6	2.3	6	3.8	3	1.85	6	2.68	5

Source: Primary Data

There are different scheme of Mutual Fund are introduced in between the financial markets but it also make some problem to the investors taking investment decision. Table No.21 had disclosed that all schemes are involve in the investors investment it influences some problems of the investment decision making, the First Rank allotted to the Difficult to Select but the same problem belongs to the Second and Third Rank between the investor’s problems. The Fourth Rank allotted to the slow growth of the investments where as it allotted to the Fifth Rank between the investors, the Fifth Rank belongs to The Lack of Awareness but some investors allocated the Sixth Rank to the same problem of Mutual Fund investment.

KENDAL’S TEST BETWEEN THE TYPES OF MUTUAL FUND AND THE PROBLEMS OF THE MUTUAL FUND INVESTMENT

Kendal’s hypotheses are formulated to the test the ranking pattern of Types of Mutual Fund and Problems of the Mutual Fund investment.

H₀: Ranking the problems by the different types of Mutual Fund investment of investors doesn’t differ significantly.

H₁: Ranking the problems by the different types of Mutual Fund investment of investors differ significantly.

Since, the calculated value S (269) is greater than the Kendall’s co-efficient Table value (182.4), the null hypotheses are rejected. Hence it concludes that the different types of Mutual Fund investment and investors rank the Problem of Mutual Fund investment.

CHI-SQUARE TEST

TABLE NO.22: INCOME OF INVESTORS AND TYPES OF THE MUTUAL FUND INVESTMENT

Income	Types of Mutual Fund					Total
	SBI	Reliance	ICICI	ING Vysya	LIC & UTI	
Upto Rs.10,000	9 (17)	19 (37)	10 (19)	6 (12)	8 (15)	52 (100)
Above Rs.10,000	12 (18)	10 (15)	7 (10)	21 (31)	18 (26)	68 (100)
Total	21 (18)	29 (24)	17 (14)	27 (22)	26 (22)	120 (100)

Source: Primary Data

Figures in parentheses are percentage

The chi-square test had been applied for the relationship between Income of Investors and the Types of the Mutual Fund Investment. It explain that the Table No.22 among 52 investors belongs the Upto Rs.10,000 income status investors have invested their money in different types of Mutual Fund. 9 investors have depend the SBI Mutual Fund, 19 investors invested in Reliance Mutual Fund, 10 Investors attracted by ICICI Mutual Fund 6 investors depend the INGVSIA Mutual Fund, remaining 8 investors involved in the LIC&UTI Mutual Fund.

In the case of Above Rs.10,000 income status of investors among 68 investors have invested their money in different ideas of Mutual Fund investment 12Investors have depend the SBI Mutual Fund, 10 Investors have attract by the Reliance Mutual Fund,7 Investors interested in the ICICI Mutual Fund Investment, 21 investors depend the ING Vysya, Remaining 18 Investors goes to LIC&UTI Mutual Fund. To test the relationship between the Income status of investors and the types of Mutual Fund Investment the following hypothesis are formulated.

HYPOTHESIS

H₀: Income status of investors does not influence the types of Mutual Fund.

H₁: Income status of investors influences the types of Mutual Fund.

Calculated Value : 25.17

Degree of Freedom : 4

Tabular Value @ 0.5%: 9.488

Since, the calculated value (25.17) is greater than the Tabular Value (9.488) at 0.5% Level of Significance, the null hypothesis rejected. Hence, it can be conclude that the Income status of investors can be influence the scheme of Mutual Fund.

TABLE NO.23: RESIDENCE OF INVESTORS AND TYPES OF THE MUTUAL FUND INVESTMENT

Residential	Types of Mutual Fund					Total
	SBI	Reliance	ICICI	ING Vysya	LIC&UTI	
Rural	12 (19)	10 (17)	12 (19)	16 (26)	12 (19)	62 (100)
Urban	9 (15)	19 (33)	8 (14)	8 (14)	14 (24)	58 (100)
Total	21 (18)	29 (24)	20 (17)	24 (20)	26 (21)	120 (100)

Source: Primary Data

Figures in parentheses are percentage

The chi-square test had been applied for the relationship between Residence of Investors and the Types of the Mutual Fund Investment. It conclude that the Table No.23 among 62 investors belongs the Rural investors have invested their money in different types of Mutual Fund. 9 investors have depend the SBI Mutual Fund, 19 investors invested in Reliance Mutual Fund, 10 Investors attracted by ICICI Mutual Fund ,12 investors depend the INGVSIA Mutual Fund , remaining 15 investors involved in the LIC&UTI Mutual Fund.

In the case of Urban investors among 58 investors have invested their money in different ideas of Mutual Fund investment 9 Investors have depend the SBI Mutual Fund , 19 Investors have attract by the Reliance Mutual Fund,8 Investors interested in the ICICI Mutual Fund Investment, 8 investors depend the INGVSIA, Remaining 14 Investors goes to LIC & UTI Mutual Fund.

To test the relationship between the gender of investors and the types of Mutual Fund Investment the following hypothesis are formulated.

HYPOTHESIS

H₀: Residence of does not influences the types of Mutual Fund.

H₁: Residence of investors influences the types of Mutual Fund.

Calculated Value : 6.61

Table Value : 9.488

Degree of Freedom : 4

Since, the calculated value (6.61) is lower than the Tabular Value (9.488) at 0.5% Level of Significance, degree of freedom (4). The null hypothesis is accepted. Hence, it can be conclude that the residence of investors does not be influence the scheme of Mutual Fund.

TABLE NO.24: EDUCATIONAL STATUS OF INVESTORS AND REASON FOR BUYING THE MUTUAL FUND INVESTMENT

Educational Status	Reason For Buying Mutual Funds				Total
	Fast Growth	High Return	Recommend of Broker	Attractive Advertisement	
Up to school	5 (15)	5 (15)	18 (55)	5 (20)	33 (100)
Diploma	5 (20)	5 (20)	10 (60)	5 (20)	25 (100)
Degree	5 (20)	6 (20)	8 (60)	8 (20)	27 (100)
Professional	6 (17)	1 (31)	9 (26)	9 (26)	35 (100)
Total	13 (11)	26 (22)	56 (27)	25 (20)	120 (100)

Source: Primary Data

Figures in parentheses are percentage

The chi-square test had been applied for the relationship between Educational status of Investors and the Reason for buying the Mutual Fund Investment. It stated that the Table No.24 among 33 investors belongs the Up to School level investors have invested their money in different Reasons for buying Mutual Fund. 5 investors have earning the Fast growth of their Investment. 5 investors invested for High return of their Mutual Fund investment, 18 Investors attracted by Recommendation of broker to investing in Mutual Fund, 5 investors are depending on the creativity of attractive advertisement for Mutual Fund investment. In the case of Profession education level of investors, among 35 investors had invested their money in different Reason for investing in Mutual Fund investment. 6 Investors have depend the Fast growth of Mutual Fund , 11 Investors have attract by the High return of Mutual Fund investment,9 Investors interested by the recommendation of Mutual Fund Investment, Remaining 9 Investors goes by attractive advertisement by the Mutual Fund. To test the relationship between the age of investors and the reason for investing their money in Mutual Fund Investment the following hypothesis are formulated.

HYPOTHESIS:

H₀: Education Status of investors is independent of the Reason for buying the Mutual Fund.

H₁: Education Status of investors not depend the reason for buying the Mutual Fund.

Calculated Value : 26.51

Degree of Freedom : 9

Tabular Value @ 0.5% : 16.919

Since, the calculated value (26.51) is lower than the Tabular Value (16.919) at 0.5% Level of Significance, the null hypothesis is accepted. It can be conclude that the educational status of investors independent to the reason for buying the Mutual Fund.

FINDINGS

- From the study that the Mutual Fund investors (33%) are in age group of between 41yrs to 50 yrs and the majority of investors (69%) are belongs to in the male category, it should be considered by the data analysis and interpretations.
- It was clear from the data analysis that the majority of (35%) investors belongs to schooling category and the regarding their place of residence of the investors (52%) are lived in Rural Area.
- The larger proportion (32%) investors are belongs to the private sector category and the income status of the investors 36 percent of the between 5001 to 10000 Rupees.
- The study disclosed that the Mutual Fund Small investors invest their money in different types of Mutual Fund in the case the majority of the investors (25%) choose the Reliance Mutual Fund regarding the amount of investment majority of investors (47%) belongs to between the Rs 5001 to Rs 10000.
- Among 120 investors, the majority of the investors (52%) in other investment and regarding their duration of investment majority of investors (83%) of having their investment More than one year.
- The majority of (22%) the investors are purchasing their Mutual Fund from the brokers and regarding the motivational factors of the investors the factors, " Good Income " secured first place, "Low Risk" and "Safety" secured second and third place respectively, the factors "Easy liquidity and Tax Concession" consider fourth and last rank respectively by the sample investors.
- From the study the majority of (46%) investors selecting the Mutual Fund by way of recommendation of brokers and the majority of the (50%) of investors the annual growth is above 75%.
- Regarding the Investment Problem of the investors the Problem, " Less Liquidity " secured first place, "Difficult to Select" and "Lack in Period" secured second and third place respectively, the Problems "slow growth and Too many Formalities" consider fourth and fifth rank respectively by the sample investors "Low awareness" was placed to last problem ranked by the Mutual Fund Sample Investors.

SUGGESTIONS

- The awareness on investment on Mutual Fund should be communicated among the rural investors through road show, small campaign and other programmed.
- The procedure of investment in Mutual Fund should be simplified.
- Most of the small investors are depend on brokers. Hence some brokers may wrongly lead the investors, so Small Investors should decide themselves. But they can consult with them. But final decision should be taken by the Small Investors only.
- The mutual fund companies clearly disclose the structure of portfolio, where they are going to investment their investment.
- The service charges of mutual fund should be reduced.

CONCLUSION

It is concluded that the Mutual Fund business in Salem District is still in an embryonic stage. So, concerted efforts are needed for its success. The success depends upon high returns, professional competence of Fund managers, a mutual fund brings together a group of people and invests their money in stocks, bonds and other securities, it has so many advantages such as professional management, economies of scale. There are many types of Mutual Funds in between the investors; the researcher selected only a few types of Mutual Funds in between small investors such as SBI, RELIANCE, ICICI, ING VYSIA, LIC and UTI at Salem District. The Mutual Fund should be easy to buy and sell through broker or directly in the market. It also has some drawbacks such as low awareness, too many formalities, difficult to select. Finally, the Mutual Fund should have great transparency, prudent accounting norms, less transaction cost, low management fees. It is very attractive between sub-urban and rural areas, it has innovative schemes and an efficient administrative system.

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A STUDY ON ATTRITION IN DOMESTIC FORMULATIONS IN CHENNAI CHEMICALS AND PHARMACEUTICALS LTD.

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ABSTRACT

In Chennai chemicals, attrition is quite high in domestic formulation. The present study is conducted through telephonic interview it was found that most of the employees were interested in the organization, and they felt that they were not comfortable with the salary package offered in Chennai. However, there are a few responses that are dissatisfied with their immediate Boss. Most of the respondents were not aware about the policies and performance appraisal. It is really a challenge for HR to retain the employees in the organization. Care should be taken while recruiting people in the organization and the package should be restructured according to market level.

KEYWORDS

HEM, Employee satisfaction, Industries.

INTRODUCTION

The project determines whether the employees moving out of the company is either due to monetary terms or non-monetary terms. It makes an in-depth study of the various factors which makes employees leave the organization, their satisfaction level and the significant effect of the Demographic factors on the employees' Loyalty towards the Organization.

Chennai Chemicals and Pharmaceuticals Ltd, headquartered in Chennai, India, ranked among the 15 leading pharmaceuticals companies in India and among the five leading cephalosporin antibiotic producers in the world, world-class in research, manufacturing and marketing capabilities. It is a vertically integrated pharmaceutical company. Among the highest in the pharmaceutical industry to spend for R & D (6% of net sales) they set out to prove that a world-class enterprise in the technologically challenging area of pharmaceuticals in India.

Attrition is defined as "A reduction in the number of employees through retirement, resignation or death". After information technology, the pharmaceuticals industry is grappling with the highest level of attrition. The fast growing knowledge-based sector suffers high attrition rate.

Attrition is high in Chennai chemicals and it has greatest impact on the business such as frequent exits erode the morale of the existing employees, Company's brand image is affected due to frequent change of PSRs, Continuity in customer interaction is missing resulting in customer dissatisfaction.

It is however no easy task for an HR manager in this sector to bridge the ever increasing demand and supply gap of professionals. The HR manager is not only required to fulfill this responsibility, but also find the right kind of people who can keep pace with the unique work patterns in this industry. Adding to this is the issue of maintaining consistency in performance and keeping the motivation levels high, despite the monotonous work. The toughest concern for an HR manager is however the high attrition rate.

COMPANY PROFILE

Chennai Chemicals & Pharmaceuticals Ltd (Chennai) was established in 1992 as a 100% Export Oriented Unit (EOU). Commencing operations in 1994, Chennai has achieved amazing and consistent growth, quantitatively and qualitatively to emerge among the Top-15 companies in the Indian pharmaceutical industry in a short span of fifteen years of operations. Chennai employs over 4000 people, of which over 700 are scientists, technologists and other professionals.

Chennai's growth and positioning in the global pharmaceutical industry are indeed distinctive. A robust leadership position in the antibiotics space, a core competence in oral and sterile manufacturing, a broad-based multi-therapeutic coverage and an end-to-end connectivity over the pharmaceutical value chain, from discovery to delivery, have positioned Chennai uniquely.

Chennai has two manufacturing sites for APIs (at Alathur near Chennai and at Aurangabad, near Mumbai) and three manufacturing sites for Dosage forms (at Irungattukottai and Alathur in Chennai), besides a world-class R&D centre (at Sholinganallur, Chennai). Chennai's facilities are state-of-the-art and have several international regulatory approvals, including the US FDA and UK MHRA. Chennai's API facilities are ISO certified for their quality, environmental management and operational health and safety systems. Chennai has a Joint Venture in China for manufacturing sterile APIs.

Chennai's scientific and technical strengths have made it a partner of choice for several multinational corporations. Chennai has long-term exclusive marketing alliances with reputed global companies for distribution of its products in the advanced markets.

Chennai has an established end-to-end connected infrastructure for drug discovery and development which are channeled through its subsidiaries, Chennai Research Laboratories in Chennai and Bexel Pharmaceuticals in the US. Through superior infrastructure and by adopting a judicious blend of structure-based drug design approach, Chennai has been able to simultaneously work on several therapeutic programs with several lead compounds in advanced stages of trials. Chennai has also entered into Contract Research initiatives with key multinational companies.

Chennai is a leader in the use of environment friendly technologies. Chennai has invested substantially in zero-discharge manufacturing processes at its facilities and is considered a national show-case in environmental friendliness.

REVIEW OF LITERATURE

Attrition is defined as "A reduction in the number of employees through retirement, resignation or death". Attrition rate is also sometimes called as Churn rate. It is one of two primary factors that determine the steady- state level of customers a business will support. In its broadest sense, attrition rate is a measure of the number of employees moving out of an organization over a specific period of time. For example, the annual churn rate would be the total number of moves completed in a 12- month period divided by the average number of occupants during the same 12- month period multiplied by 100 percent.

Most Indian pharma companies facing a very high level of attrition are those who have relatively smaller operations and handle processes requiring low knowledge levels. The typical Indian pharma player can be characterized by the following:

- Operating at low end of market and only skill required by agents is sales ability
- Most agents have little discrimination and have to stick to prepared script
- The typical agent is in the age group 18-26 and certainly below 30
- The typical agent is a graduate, about 20% are high school pass and there is no one with post graduation or higher level education
- Two thirds of the churn can be attributed to people moving from one company to another implying that they are staying within the industry and not quitting it to join some other industry – that means stressful nature of the job alone is not a good explanatory factor and merely taking steps only to reduce stress will not help stem attrition.

At some point or the other, everybody leaves his/her job. Some leave because they have found a better option and some leave because they just wanted to. And then there are those keep hopping from time to time. And this time it's not the experienced ones who hop, but the young guns who are considered to be the future leaders of the organization.

A recent survey by Associated Chambers of Commerce and Industry of India (ASSOCHAM) threw up some interesting figures regarding the attrition rates in India Inc. The survey focused on the 'Attrition Problem in growing Economy' and said that the maximum attrition is taking place in the age group of 26 to 30 years. The survey reflects the current scenario as people in this age group a few years of experience with them and a higher pay packet from prospective employers provokes them to shift.

This age group is considered as highly mobile as they are supposed to be at the peak of their careers. Therefore, they want to make the most out of it. At the ages of 22-23, they are fresh out of college, ambitious and high on aspiration; they take the initial years as 'learning experience' and want to learn the tricks of the game as soon as possible. The opportunities are higher, and they are motivated to give their best shots and reach the peak in minimum time frame.

A few years down the line, employees shift as their climb in terms of salary or position in the beginning is not very high. Because of the sheer number of opportunities in corporate India at present, people no longer look at long term prospects from the start. They want the best. People want to grow fast and if they don't see the steep rise in their current organization, they switch to another company.

The immediate gains in salary package were also found to be responsible for job change in 61 % of the cases. Employees in this age group get married and are always on the lookout to enhance their monetary status and a job with higher pay package is always welcome. High salaries are complemented by the higher position in the organization that they hold. People are also looking at skipping posts, as they want to rise to the top fast. So, most of the times the decision to switch job is taken as a higher post is offered in the new organization. People at this level move for several reasons better compensation, immediate focus on vertical growth (i.e. quick promotion), and peer pressure. At this level, keeping with peers is important and they may feel that job switching helps them to do that.

The image of the company plays an important role, as people in India want themselves to be associated with established names. The general public identifies the company with its brand name! Therefore, people also feel proud when they say that they work for a particular company, this 'brand image' of the company also plays a huge part in employees switching over and hoping to get into the organization.

The challenges today are greater and higher energy levels are required to accomplish them. People today up jobs, give their 100% and then look for sheer brand name.

It the attrition rates in the given age group are so high, then why do companies still hire them? The energy the young engineers bring in is very infectious. They are very productive and if organizations keep them engaged, they tend to stay longer.

The outlined message is loud and clear. Companies can't do without the young blood and therefore provide a host of features to attract the talent to stay with them for a long time. From faster career prospects to greater remuneration, everything is on the cards, just grab the opportunity.

Indian pharma companies which have been somewhat successful in tackling attrition have identified five major reasons behind the problem. These reasons and the typical response to tackle them are outlined below by way of providing what may prove to be helpful tips.

- Reason 1: Demand is more than supply: there is no dearth of graduates and plus two pass but the supply of people with good interpersonal skills and sales ability in this category is not adequate.
- Strategy: Constantly identify talent, recruit and train either in-house if scale of operations permit that or through an outsourced training agency in case of smaller operations.
- Reason 2: People are joining with a short-term view and as a stepping stone to something else.
- Strategy: Create a culture and work environment that encourages people to think of a pharma sales job as a long-term career option. Use counseling by HR and line management. This has to be backed up by demonstrated and perceived efforts by the management to move up the value chain so that employees can clearly see that the management is making efforts to create opportunities for upward mobility among employees.
- Reason 3: A lot of young people are taking up pharma sales jobs just to earn some money on the side as a short gap arrangement – not as a serious and long-term career option.
- Strategy: Create a culture and work environment that encourages people to think of sales as a long-term career option. Use counseling by HR and line management. Again this has to be backed up management efforts to move up the knowledge continuum in terms of the processes handled.
- Reason 4: Long-term or intangible or contingency benefits such as PF or medical coverage do not have much attraction for pharma sales personnel – they want everything in cash – here and now.
- Strategy: Redesign the compensation package for pharma sales employees and try to pay as much as possible in hard cash. Work out if necessary a new pay structure highly skewed towards cash benefits. Typically the new pay structure is along following lines: Basic (54%), HRA (26%), Medical Reimbursement (8%), Management Supplement (12%), PF Contribution (actuals), Tiffin Allowance (Rs 25-30 per day of attendance), Attendance Bonus (Rs 500-1000 per month), Loyalty Bonus (1 month's salary after completion of each year in the company), Performance Incentives (linked to specific performance criteria), Referral Allowance (Rs 2000-3000 per candidate referred and recruited).
- Reason 5: Pharma sales employees have an average age profile of 20-24 years, so they are highly emotional, impulsive and immature when taking career decisions.
- Strategy: Constant counseling.

Most management somewhat successful in tackling attrition believe that although stressful nature of the job is not a reason for high attrition, since much of the churn is within the industry, methods to relieve stress or to manage stress is important from the point of view of retention and productivity. Consequently, most such companies organize "fun" events such as picnics, dance parties, get-togethers, cultural evenings, quizzes and games and outdoor sports and games. Some even appoint professional agencies to organize regular stints of aerobic exercises and dancing sessions for employees as part of stress management.

OBJECTIVE OF THE STUDY

PRIMARY OBJECTIVE

To study the factors leading to employee turnover at Chennai Chemicals.

SECONDARY OBJECTIVE

- To find out the monetary factors which lead to employee dissatisfaction at Chennai Chemicals
- To find out the factors regarding organizational culture which lead to employee turnover at Chennai Chemicals
- To come out with suggestions to bring down the attrition rate at Chennai Chemicals by creating an employee favorable climate.

RESEARCH METHODOLOGY

The project is carried out using descriptive research through primary data obtained by conducting an exit interview through telephone using questionnaire for those employees who resigned from this organization from the period of Jan 2008 to March 2008. A sample size of 60 is taken to carry out the survey. The sample size of 60 individuals is selected on the basis of convenient sampling technique. The individuals were selected in a random manner to form sample and data was collected from them for the research study.

ANALYSIS AND INTERPRETATION

The data collected by random sampling method by conducting an exit interview through telephone using questionnaire was analyzed and interpreted with the help of Statistical Package for Social Studies (SPSS)

DATA SOURCE

This research used primary and secondary data.

PRIMARY DATA

This is collected either through experiment or through survey- by observation, through personal interview, telephonic interview or by mailing questionnaire. In this project the data has been collected by conducting an exit interview for those employees who resigned from this organization from the period of Jan 2008 to March 2008. The respondents were Professional Sales Representatives, Business Manager, Zonal Business Manager.

SECONDARY DATA

It has been already been collected, published available for use.

TOOLS USED

- Mean
- Percentage analysis
- Chi-square test

LIMITATIONS

- Having left the organization respondents was not ready to give any opinion about Chennai.
- Scheduling of respondents was difficult as they were busy with own schedule.
- Few of the respondents who had less experience did not know about the policies of the organization.
- Possibility of call getting disconnected and did not able to contact later.

DATA ANALYSIS AND INTERPRETATION

PERCENTAGE ANALYSIS

1. Table Showing the Age of the respondents

		AGE			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1=Less than 22	6	10.0	10.0	10.0
	2=22 to 25	33	55.0	55.0	65.0
	3=25 to 30	10	16.7	16.7	81.7
	4=30 to 35	8	13.3	13.3	95.0
	5=Greater than 35	3	5.0	5.0	100.0
Total		60	100.0	100.0	

From the above table, it can be inferred that 10% of the respondents are less than 22 years of age, 55% of the respondents belong to the age group of 22 to 25, 16.7% of the respondents belong to the age group of 25 to 30, 13.3% of the respondents belong to the age group of 30 to 35 and the rest belong to the age group of more than 35.

2. Table Showing the Educational qualifications

		EDUCATIONAL QUALIFICATION			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1=B.Pharm	1	1.7	1.7	1.7
	2=D.Pharm	12	20.0	20.0	21.7
	3=B.Sc	24	40.0	40.0	61.7
	4=B.Com	16	26.7	26.7	88.3
	5=Others	7	11.7	11.7	100.0
Total		60	100.0	100.0	

From the above table, it can be inferred that 1.7% of the respondents are B.Pharm graduates, 20% of the respondents are D.Pharm graduates, 40% of the respondents are B.Sc., 26.7% of the respondents are B.Com graduates and the rest have done other graduation.

3. Table Showing the work Experience

		WORK EXPERIENCE			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1=0 to 6 months	21	35.0	35.0	35.0
	2=6 to 12 months	16	26.7	26.7	61.7
	3=one to five years	17	28.3	28.3	90.0
	4=five to ten years	6	10.0	10.0	100.0
Total		60	100.0	100.0	

From the above graph, it can be inferred that 35% of the respondents worked in this organization for 0-6 months, 26.7% of the respondents worked in this organization for 6-12 months, 28.3 of the respondents worked in this organization for 1-5 years and 10% of the respondents worked in this organization for 5-10 years.

4. Table Showing Reason for leaving Job

		REASON FOR LEAVING THE JOB			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1=Problem with immediate supervisor	5	8.3	8.3	8.3
	2=Salary level	32	53.3	53.3	61.7
	3=Inability to achieve the target	4	6.7	6.7	68.3
	4=Promotion	11	18.3	18.3	86.7
	5=Higher Studies	8	13.3	13.3	100.0
Total		60	100.0	100.0	

From the above graph, it can be inferred that 8.3% of the respondents left the organization because of problem with immediate supervisor, 53.3% of the respondents left the organization because of salary, 6.7% of the respondents left the organization because of their inability to achieve the target, 18.3% of the respondents left the organization because of better promotion offered by other organization and 13.3% of the respondents left the organization because of their higher studies.

MEAN ANALYSIS

Variable	Mean
Satisfaction level with allowance	3.20
Satisfaction level with incentives	3.97
Satisfaction level with Security	4.13
Satisfaction level with Career growth	4.12
Agreement level with Inspiration	3.92
Agreement level with Training	3.98
Agreement level with Performance appraisal system	3.25
Agreement level with Opinion about promotion on performance basis	3.43
Agreement level with Promotion on fair basis	3.45
Agreement with Salary	2.38
Agreement level with Opinion about high work pressure	2.65

INTERPRETATION

- From the output table, the mean value obtained for employee satisfaction level with allowances provided at Chennai Chemicals is 3.20. Hence, on an average, the employees who left Chennai Chemicals were neither satisfied nor dissatisfied with the allowances provided at Chennai Chemicals.
- From the output table, the mean value obtained for employee satisfaction level with incentives provided at Chennai Chemicals is 3.97. Hence, on an average, the employees who left Chennai Chemicals were satisfied with the incentives provided at Chennai Chemicals.
- From the output table, the mean value obtained for employee satisfaction level with incentives provided at Chennai Chemicals is 4.13. Hence, on an average, the employees who left Chennai Chemicals were satisfied with the job security provided at Chennai Chemicals.
- From the output table, the mean value obtained for employee satisfaction level with incentives provided at Chennai Chemicals is 4.12. Hence, on an average, the employees who left Chennai Chemicals were satisfied with the career growth opportunities provided at Chennai Chemicals.
- From the output table, the mean value obtained for employee agreement level with organization inspiration provided at Chennai Chemicals is 3.92. Hence, on an average, the employees who left Chennai Chemicals were agreed with the organization inspiration to work in a better way at Chennai Chemicals.
- From the output table, the mean value obtained for employee agreement level with training provided at Chennai Chemicals is 3.98. Hence, on an average, the employees who left Chennai Chemicals were satisfied with the training provided at Chennai Chemicals.
- From the output table, the mean value obtained for employee agreement level with Performance Appraisal System provided at Chennai Chemicals is 3.25. Hence, on an average, the employees who left Chennai Chemicals were neither agree nor disagree with the Performance Appraisal System provided at Chennai Chemicals.
- From the output table, the mean value obtained for employee agreement level with Opinion about promotion on performance basis provided at Chennai Chemicals is 3.43. Hence, on an average, the employees who left Chennai Chemicals were neither agree nor disagree with the fact the promotion obtained on performance basis provided at Chennai Chemicals.
- From the output table, the mean value obtained for employee agreement level with Opinion about promotion on fair basis provided at Chennai Chemicals is 3.45. Hence, on an average, the employees who left Chennai Chemicals were neither agree nor disagree with the opinion about promotion on fair basis provided at Chennai Chemicals.
- From the output table, the mean value obtained for employee opinion about the salary provided at Chennai Chemicals is 2.38. Hence, on an average, the employees who left Chennai Chemicals were considered the package provided at Chennai Chemicals is low.
- From the output table, the mean value obtained for employee agreement level with Opinion about high pressure provided at Chennai Chemicals is 2.65. Hence, on an average, the employees who left Chennai Chemicals were neither agree nor disagree with the fact that high pressure lead to high attrition rate.

CHI-SQUARE TEST

1. Age Vs Satisfaction level with allowances:

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.291 ^a	12	.762
Likelihood Ratio	9.541	12	.656
Linear-by-Linear Association	.185	1	.667
N of Valid Cases	60		

a. 17 cells (85.0%) have expected count less than 5. The minimum expected count is .15.

Symmetric Measures

	Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Nominal by Phi	.372			.762
Nominal by Cramer's V	.215			.762
Interval by Interval Pearson's R	.056	.116	.427	.671 ^c
Ordinal by Ordinal Spearman Correlation	.009	.123	.067	.947 ^c
N of Valid Cases	60			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

INTERPRETATION

From the output tables, the chi-square test read a significance level of 0.667 at 95% confidence level. For 95%, significance level is 0.05., so the above result shows that at 0.667, there is no significant relationship between the two variables.

Hence, there is no significant relationship between the age and the employees satisfaction level with allowances provided at Chennai chemicals.

2. Age Vs Satisfaction level with incentives:

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.761 ^a	12	.723
Likelihood Ratio	10.457	12	.576
Linear-by-Linear Association	1.681	1	.195
N of Valid Cases	60		

a. 16 cells (80.0%) have expected count less than 5. The minimum expected count is .05.

Symmetric Measures

	Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Nominal by Nominal Phi	.382			.723
Nominal by Nominal Cramer's V	.221			.723
Interval by Interval Pearson's R	.169	.122	1.304	.197 ^c
Ordinal by Ordinal Spearman Correlation	.204	.127	1.584	.119 ^c
N of Valid Cases	60			

- a. Not assuming the null hypothesis.
- b. Using the asymptotic standard error assuming the null hypothesis.
- c. Based on normal approximation.

INTERPRETATION

From the output tables, the chi-square test read a significance level of 0.195 at 95% confidence level. For 95%, significance level is 0.05., so the above result shows that at 0.195, there is no significant relationship between the two variables.

Hence, there is no significant relationship between the age and the employees satisfaction level with incentives provided at Chennai chemicals.

3. Age Vs Satisfaction level with Security

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.813 ^a	8	.874
Likelihood Ratio	4.252	8	.834
Linear-by-Linear Association	1.107	1	.293
N of Valid Cases	60		

a. 11 cells (73.3%) have expected count less than 5. The minimum expected count is .20.

Symmetric Measures

	Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Nominal by Nominal Phi	.252			.874
Nominal by Nominal Cramer's V	.178			.874
Interval by Interval Pearson's R	.137	.138	1.053	.297 ^c
Ordinal by Ordinal Spearman Correlation	.151	.138	1.165	.249 ^c
N of Valid Cases	60			

- a. Not assuming the null hypothesis.
- b. Using the asymptotic standard error assuming the null hypothesis.
- c. Based on normal approximation.

INTERPRETATION

From the output tables, the chi-square test read a significance level of 0.293 at 95% confidence level. For 95%, significance level is 0.05., so the above result shows that at 0.293, there is no significant relationship between the two variables.

Hence, there is no significant relationship between the age and the employees satisfaction level with job security provided at Chennai chemicals.

4. Age Vs Satisfaction level with Career growth

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	12.904 ^a	12	.376
Likelihood Ratio	16.115	12	.186
Linear-by-Linear Association	.005	1	.945
N of Valid Cases	60		

a. 17 cells (85.0%) have expected count less than 5. The minimum expected count is .05.

Symmetric Measures

	Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Nominal by Nominal Phi	.464			.376
Nominal Cramer's V	.268			.376
Interval by Interval Pearson's R	-.009	.129	-.068	.946 ^c
Ordinal by Ordinal Spearman Correlation	-.016	.132	-.125	.901 ^c
N of Valid Cases	60			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

INTERPRETATION

From the output tables, the chi-square test read a significance level of 0.945 at 95% confidence level. For 95%, significance level is 0.05., so the above result shows that at 0.945, there is no significant relationship between the two variables.

Hence, there is no significant relationship between the age and the employees satisfaction level with career growth opportunities provided at Chennai chemicals.

5. Age Vs Agreement level with Inspiration

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.323 ^a	8	.827
Likelihood Ratio	4.889	8	.769
Linear-by-Linear Association	.443	1	.506
N of Valid Cases	60		

a. 11 cells (73.3%) have expected count less than 5. The minimum expected count is .25.

Symmetric Measures

	Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Nominal by Nominal Phi	.268			.827
Nominal Cramer's V	.190			.827
Interval by Interval Pearson's R	-.087	.132	-.662	.510 ^c
Ordinal by Ordinal Spearman Correlation	-.062	.141	-.471	.640 ^c
N of Valid Cases	60			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

INTERPRETATION

From the output tables, the chi-square test read a significance level of 0.506 at 95% confidence level. For 95%, significance level is 0.05., so the above result shows that at 0.506, there is no significant relationship between the two variables.

Hence, there is no significant relationship between the age and the employees agreement level with inspiration provided at Chennai chemicals to work in a better way .

6. Age Vs Agreement level with Training

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	16.952 ^a	12	.151
Likelihood Ratio	20.003	12	.067
Linear-by-Linear Association	9.024	1	.003
N of Valid Cases	60		

a. 17 cells (85.0%) have expected count less than 5. The minimum expected count is .25.

Symmetric Measures

	Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Nominal by Nominal Phi	.532			.151
Nominal by Nominal Cramer's V	.307			.151
Interval by Interval Pearson's R	.391	.082	3.236	.002 ^c
Ordinal by Ordinal Spearman Correlation	.403	.097	3.349	.001 ^c
N of Valid Cases	60			

- a. Not assuming the null hypothesis.
- b. Using the asymptotic standard error assuming the null hypothesis.
- c. Based on normal approximation.

INTERPRETATION

From the output tables, the chi-square test read a significance level of 0.003 at 95% confidence level. For 95%, significance level is 0.05., so the above result shows that at 0.003, there is a significant relationship between the two variables.

Hence, there is a significant relationship between the age and the employees' agreement level with training provided at Chennai chemicals was sufficient enough to achieve the target.

7. Age Vs Agreement level with Performance appraisal system

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.413 ^a	12	.943
Likelihood Ratio	7.131	12	.849
Linear-by-Linear Association	.465	1	.495
N of Valid Cases	60		

a. 17 cells (85.0%) have expected count less than 5. The minimum expected count is .05.

Symmetric Measures

	Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Nominal by Nominal Phi	.300			.943
Nominal by Nominal Cramer's V	.173			.943
Interval by Interval Pearson's R	.089	.104	.679	.500 ^c
Ordinal by Ordinal Spearman Correlation	.043	.118	.327	.745 ^c
N of Valid Cases	60			

- a. Not assuming the null hypothesis.
- b. Using the asymptotic standard error assuming the null hypothesis.
- c. Based on normal approximation.

INTERPRETATION

From the output tables, the chi-square test read a significance level of 0.495 at 95% confidence level. For 95%, significance level is 0.05., so the above result shows that at 0.495, there is no significant relationship between the two variables.

Hence, there is no significant relationship between the age and the employees agreement level with performance appraisal system provided at Chennai chemicals.

8. Age Vs Agreement level with Opinion about promotion on performance basis

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	15.138 ^a	16	.515
Likelihood Ratio	17.770	16	.338
Linear-by-Linear Association	5.657	1	.017
N of Valid Cases	60		

a. 22 cells (88.0%) have expected count less than 5. The minimum expected count is .05.

Symmetric Measures

	Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Nominal by Nominal Phi	.502			.515
Nominal by Nominal Cramer's V	.251			.515
Interval by Interval Pearson's R	.310	.085	2.480	.016 ^c
Ordinal by Ordinal Spearman Correlation	.384	.101	3.167	.002 ^c
N of Valid Cases	60			

- a. Not assuming the null hypothesis.
- b. Using the asymptotic standard error assuming the null hypothesis.
- c. Based on normal approximation.

INTERPRETATION

From the output tables, the chi-square test read a significance level of 0.017 at 95% confidence level. For 95%, significance level is 0.05., so the above result shows that at 0.017, there is a significant relationship between the two variables.

Hence, there is a significant relationship between the age and the employees agreement level with promotion on performance basis provided at Chennai chemicals.

9. Age Vs Agreement level with Promotion on fair basis

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.424 ^a	16	.964
Likelihood Ratio	8.967	16	.915
Linear-by-Linear Association	1.268	1	.260
N of Valid Cases	60		

a. 22 cells (88.0%) have expected count less than 5. The minimum expected count is .05.

Symmetric Measures

	Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Nominal by Nominal Phi	.352			.964
Nominal by Nominal Cramer's V	.176			.964
Interval by Interval Pearson's R	.147	.100	1.129	.264 ^c
Ordinal by Ordinal Spearman Correlation	.150	.119	1.153	.254 ^c
N of Valid Cases	60			

- a. Not assuming the null hypothesis.
- b. Using the asymptotic standard error assuming the null hypothesis.
- c. Based on normal approximation.

INTERPRETATION

From the output tables, the chi-square test read a significance level of 0.260 at 95% confidence level. For 95%, significance level is 0.05., so the above result shows that at 0.260, there is no significant relationship between the two variables.

Hence, there is no significant relationship between the age and the employees agreement level with promotion on fair basis provided at Chennai chemicals.

10. Age Vs Salary

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.771 ^a	8	.877
Likelihood Ratio	4.420	8	.817
Linear-by-Linear Association	2.237	1	.135
N of Valid Cases	60		

a. 11 cells (73.3%) have expected count less than 5. The minimum expected count is .05.

Symmetric Measures

		Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Nominal by Nominal	Phi	.251			.877
Nominal	Cramer's V	.177			.877
Interval by Interval	Pearson's R	-.195	.113	-1.512	.136 ^c
Ordinal by Ordinal	Spearman Correlation	-.205	.119	-1.595	.116 ^c
N of Valid Cases		60			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

INTERPRETATION

From the output tables, the chi-square test read a significance level of 0.135 at 95% confidence level. For 95%, significance level is 0.05., so the above result shows that at 0.135, there is no significant relationship between the two variables.

Hence, there is no significant relationship between the age and the employee's opinion about salary provided at Chennai chemicals.

11. Age Vs Agreement level with Opinion about high work pressure

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.420 ^a	12	.579
Likelihood Ratio	10.176	12	.601
Linear-by-Linear Association	.020	1	.889
N of Valid Cases	60		

a. 17 cells (85.0%) have expected count less than 5. The minimum expected count is .05.

Symmetric Measures

		Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Nominal by Nominal	Phi	.417			.579
Nominal	Cramer's V	.241			.579
Interval by Interval	Pearson's R	-.018	.123	-.139	.890 ^c
Ordinal by Ordinal	Spearman Correlation	.007	.129	.053	.958 ^c
N of Valid Cases		60			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

INTERPRETATION

From the output tables, the chi-square test read a significance level of 0.889 at 95% confidence level. For 95%, significance level is 0.05., so the above result shows that at 0.889, there is no significant relationship between the two variables.

Hence, there is no significant relationship between the age and the employee's agreement level with opinion about high pressure lead to higher attrition rate.

FINDINGS

- Most of the respondents were neither satisfied nor dissatisfied with the allowances.
- Most of the respondents were satisfied with the incentives provided at Chennai Chemicals.
- Most of the respondents were satisfied with the job security provided at Chennai Chemicals.
- Most of the respondents were satisfied with the career growth opportunities provided at Chennai Chemicals.
- Most of the respondents agreed with the fact that the organization inspired them to work in a better way at Chennai Chemicals.
- Most of the respondents were satisfied with the training provided at Chennai Chemicals.
- Most of the respondents who left the organization were not in a position to judge the Performance Appraisal System provided at Chennai Chemicals.
- Most of the respondents were not in a position to judge whether the Promotion was on performance basis at Chennai Chemicals.
- Most of the respondents consider that the package provided at Chennai Chemicals is low.
- Most of the respondents were not in a position to judge whether the high pressure lead to high attrition rate at Chennai Chemicals.
- Most of the respondents were dissatisfied with the salary package provided to them at Chennai Chemicals.

In the telephonic interview it was found that most of the employees were interested in the organization, and they felt that they were not comfortable with the salary package offered in Chennai. However, there are a few respondents who are dissatisfied with their immediate Boss. Most of the respondents were dissatisfied with the monetary terms like allowances and Salary.

SUGGESTIONS

- HR must communicate the policies to the employees in the induction itself
- The HR should take care that all the newly recruited people are given proper induction and training.
- The proper awareness about the performance Appraisal System can be created in the induction itself.
- While competing with other pharma companies competitive salary Package should be offered to the employees for talent attraction.
- The Telephonic allowances can be increased to the market level.
- The percentage of Internal Promotion can be increased compared to recruiting people from outside.
- The care should be taken while recruiting the right people for the right job to ensure retention. So that unnecessary recruitment costs can be reduced.
- Appreciations can be given by their immediate bosses when they perform well and it will motivate the employees and give the feel that they are truly valued in organization.
- The experienced employees can be given a hike in their salary compared to newly hired employees.

CONCLUSION

In Chennai chemicals, attrition is quite high in domestic formulation. In this study done by conducting the telephonic interview it was found that most of the employees were interested in the organization, and they felt that they were not comfortable with the salary package offered in Chennai. However, there are a few responses that are dissatisfied with their immediate Boss. Most of the respondents were not aware about the policies and performance appraisal.

It is really a challenge for HR to retain the employees in the organization. Care should be taken while recruiting people in the organization and the package should be restructured according to market level.

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A STATISTICAL ANALYSIS OF DAILY NIFTY RETURNS, DURING 2001-11

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ABSTRACT

Indian equity market has witnessed tremendous growth and volatility over the last ten financial years. During this period, the value of S&P CNX NIFTY, the leading Indian benchmark Index, has increased more than 5 times. In this paper we address the problem of analysis of daily returns of NIFTY (from 1st April 2001 to 31st March 2011). First we report some descriptive statistics, such as the maximum, minimum, average, variance and skewness of daily NIFTY returns within each financial year. We find that daily NIFTY returns exhibits time varying volatility and skewness. 2008-09 was the most volatile year and the highest daily return was recorded in 2009-10. In fact the volatility in NSE during last ten financial years seems to exhibit a cyclic pattern. Next we examine whether NSE is weak form efficient, during the study period, using two well known tools of time series analysis, viz. unit root tests and plot of autocorrelation function. It turns out that for each financial year, the NIFTY daily returns are stationary i.e. the daily returns do not exhibit any trend. However until 2005-2006, the successive daily NIFTY returns exhibit significant autocorrelation, i.e. future returns can be predicted by modeling past daily returns. But from 2006-07 onwards the extent of correlation between successive daily NIFTY returns starts decreasing, and NSE seems to be weak form efficient during 2008-9 and 2010-11. It appears that due to the continuous efforts of NSE to improve stock market microstructure NSE has gradually developed into a weak form efficient market in 2010-11 i.e. one cannot predict future returns by analyzing past returns.

KEYWORDS

NIFTY daily return, weak form efficiency, stationary, volatility, auto correlation.

INTRODUCTION

The last decade has been a very eventful period for the Indian securities market. During the last ten years, the National Stock Exchange (NSE) has undertaken various reforms to improve the stock market microstructure in India. For instance, in April 2002, the Indian capital markets joined the league of developed markets in the world by the introduction of the T+3 rolling settlement cycle and further to T+2 in April 2003. In June 2002, the target of 100 percent dematerialized trading was achieved. In the year 2008, direct market access (DMA) was introduced for institutional investors. DMA provided them to access the exchange trading system through the broker's infrastructure, without manual intervention by the broker. These information are available in NSE website www.nseindia.com. The S&P CNX NIFTY Index (we call it NIFTY) is a benchmark index in NSE. It is the leading Indian benchmark index, representing 22 sectors of the Indian economy. In this paper we analyze the daily returns of the NIFTY for ten consecutive financial years, from 1st April 2001 to 31st March 2011.

During the downturn in 2008 and the dramatic post election recovery in 2009, Indian equity market witnessed great volatility. Our objective is to test whether NSE is weak form efficient and to compare volatility in NSE during the different financial years. A market is said to be weak form efficient (see Sharma and Chander (2011)) if it is not possible to predict future price changes or returns by analyzing past returns. So weak form efficiency implies that the successive daily returns do not exhibit any pattern, and there is no correlation between the returns in consecutive time period. We measure the volatility in NSE, within a financial year, by the variance of the daily NIFTY returns during that period.

DATA

We have collected data on closing values of S&P CNX NIFTY Index, during the period 1st April 2001 to 31st March 2011, from NSE website, viz. www.nseindia.com.

METHODOLOGY

The return for the t th day is defined as $R_t = 100 \text{Log}(P_t/P_{t-1})$, where P_t, P_{t-1} are the closing price of the NIFTY on the t th and the previous day. Log represents natural logarithm. The analysis of the daily returns is performed in three stages.

First in Table 1 we report the maximum, minimum, average daily NIFTY return, the variance and skewness coefficient of the daily returns within a financial year. The variance of the daily NIFTY returns during a financial year measures the volatility in NSE during that period. Skewness refers to lack of symmetry, and it represents existence of a few extreme daily returns within a financial year. Using D'Agostino test (see <http://127.0.0.1:15106/library/moments/html/agostino.test.html>), we test whether the distribution of daily NIFTY returns is significantly skewed, for each year under study. In this test, the null hypothesis is that the distribution is symmetric or skewness equals zero. We have computed the p-value for this test using the free software "R" for statistical analysis (see www.r-project.org). If the p-value is less than the level of significance we reject the null hypothesis that skewness equal zero. In this paper we fix the level of significance at 5 percent.

In Table 2, we compute the percentages of daily returns above 2 percent and below -2 percent in the ten financial years. These statistics are used for quick comparison of the market scenarios in different financial years.

Next we test whether NSE is weak form efficient. For this we apply two well known tools, viz. unit root tests and autocorrelation function (acf) plots. We describe them briefly.

If NSE is weak form efficient, over a period, then daily NIFTY returns during that period are expected to be stationary i.e. free from any pattern which can be modeled such as a random walk. We use two well known "unit root" tests, viz. Philip-Perron (PP) test and Augmented Dickey-Fuller (ADF) test (see Sharma and Chander (2011)), to verify whether the daily NIFTY returns within a financial year are stationary. In these tests the null hypothesis is that, the series of NIFTY daily returns is not stationary i.e. the series exhibits random walk. In a statistical test, if the p-value is less than the level of significance, then the null hypothesis is rejected. In this paper we fix the level of significance at 5 percent. Consequently a small p-value, less than 0.05, will indicate that the series of NIFTY daily returns is stationary. In Table 3 we compute the p-values of ADF and PP tests for daily NIFTY return data for the ten financial years under study. These p-values are computed using the free software "R" for statistical analysis (see www.r-project.org).

Even if the daily returns, within a specific period, are stationary one can still model them (and hence predict future values) using stationary time series models such as an auto regression or a moving average model (see Pankratz (1983)), provided there exists non-zero auto correlation between consecutive terms in that series. Autocorrelation of lag "k" refers to the ordinary correlation coefficient between the values of R_t and R_{t-k} (see Sharma and Chander (2011)).

Zero (or close to zero) value of the autocorrelation coefficients imply that price changes in consecutive time periods are uncorrelated with each other, and thus can be viewed as evidence in favour of the hypothesis that NSE is weak form efficient. For daily NIFTY returns within each financial year, we plot the autocorrelation coefficients for different time lags using "acf" function in the software R. For instance see Figures 1 to 10. In each plot, if the values of the autocorrelation coefficients fall within the confidence interval (the blue horizontal lines), i.e. if the calculated autocorrelation coefficients do not differ significantly from zero, then we conclude that NSE is weak form stationary within that financial year.

LITERATURE REVIEW

Analysis of daily returns of key Indian benchmark indices has been an area of active research in the recent past. For instance, Sharma and Chander (2011) has analyzed the daily returns of SENSEX, a benchmark index in Bombay Stock Exchange India, from July 1997 to December 2007. Their analysis indicates that SENSEX is weak form efficient during the study period.

Singh and Kansal (2010) compared the volatility in NIFTY daily returns before and after the declaration of union budgets, and concluded that there is significant short term effect of union budget announcements on NIFTY returns.

Ray and Sharma (2008) studied the efficiency of the Indian capital market, and concluded that only companies in the index show efficiency, and not the index as whole. However the authors observed that Indian capital is overall efficient, in the sense that there is no unfair advantage to any individual or institution.

Varma and Rao (2007) examined companies included in the BSE100 index. They concluded that during the years 1998-199 and 1999-2000, Indian market was not weak form efficient. However, the market became efficient during 2000-01.

Gupta and Kundu (2006) analyzed the impact of union budgets on stock market considering the returns and volatility in SENSEX.

Kaur (2004) studied the extent and pattern of stock return volatility of the Indian stock market during the year 1990 to 2000. The author observed that April was the most volatile month followed by March and February.

The financial years 2008-09 and 2009-10 had been a period of great volatility, during which the world witnessed the greatest recession since 1930 and a contrastingly dramatic recovery in Indian equity market after the elections in 2009. From the study of Varma and Rao (2007) we see that efficiency of a stock market can vary from one year to another. So it is natural to question whether Indian equity market has remained efficient during this turbulent phase. None of the above mentioned studies covered the financial year 2008-09 and beyond. In this paper we analyze whether S&P CNX NIFTY Index is weak form efficient during the last ten financial years, from 1st April 2001 to 31st March 2011. We also compare some quantitative attributes of NIFTY such as volatility, skewness, chance of extreme returns etc. across different financial years, before and after 2008.

FINDINGS

Following are the main observations based on Tables 1-3, and Figures 1-10, which are given in Appendix after the references.

1. From Table 1, we see that NIFTY daily returns exhibit time varying volatility and skewness. For instance, during the last ten financial years NIFTY was least volatile during 2002-03. In contrast, 2008-09 was the most volatile period. In fact, the NIFTY volatility seems to change in cyclic pattern. For instance, volatility in NIFTY daily returns started increasing from 2003-04 onwards, but fell abruptly during 2005-06. Again the volatility increased from 2006-07 onwards, reached the peak in 2008-09, and seems to be decreasing from 2009-10 onwards. Considering this periodic pattern, NIFTY volatility is expected to increase in the next few financial years.

The highest negative daily NIFTY return was recorded in 2008-09. The highest positive daily NIFTY return was recorded during 2009-10. We find that for nine out of ten years covered in this study, the distribution of daily NIFTY returns within a financial year is either negatively skewed or symmetric (see Table 1). However during 2009-10, the daily NIFTY returns were strongly positively skewed. During this financial year the Indian equity market witnessed very strong recovery from the lows of October 2008.

2. From Table 2, we see that the chance of daily NIFTY returns exceeding 2 percent or falling below -2 percent has steadily increased from 2002-03 onwards, until 2008-09. However during 2009-10 and 2010-11, these chances seem to have decreased drastically.

3. From Table 3, we see that the daily NIFTY returns are stationary for every financial year. Next we investigate whether there exists any autocorrelation among successive daily returns during different financial years.

4. From Figures 1 and 3, we see that there exists significant positive first order autocorrelation during 2001-02 and 2003-04 i.e. it is possible to fit a moving

average model (e.g. $R_t = Z_t + \alpha Z_{t-1}$ where $\{Z_t\}$ is a sequence of white noise) to the daily NIFTY returns, during these periods, and predict future price changes. From Figures 2 and 4, we see that there exists significant higher order autocorrelation in the daily NIFTY returns during 2002-03 and 2004-05, and so again one can predict future price changes by fitting time series model to these data.

Therefore during these four financial years NSE is not weak form efficient.

5. From Figures 5 to 7, we see that from 2005-06 to 2007-08 for the lower order autocorrelations (up to lag 10) do not differ significantly from zero.

6. During 2008-09 and 2010-11, none of the autocorrelation coefficients are significantly different from zero (calculated autocorrelations lie within the confidence intervals) (see Figures 8 and 10). So NSE has been weak form efficient during in 2008-09 and 2010-11.

For the daily NIFTY returns, during 2009-10, there exists significant negative autocorrelation of lag 5 (see Figure 9). So during 2009-10, NSE was not weak form efficient. However, from the previous discussions we have observed that 2009-10 was year of exceptional growth in Indian equity market and so the characteristics of the Indian equity market during that period is not comparable to other financial years.

CONCLUSION

Our data analysis reveals NSE has gradually evolved into a weak form efficient market in 2010-2011. A remarkable feature of NSE is that it has been efficient even during the very turbulent year 2008-09, during which equity markets all over the world had suffered due to global economic recession. Success of Indian equity market to bounce back strongly, from the low of October 2008, and to be efficient even during the crisis period of 2008-09 is to a great extent due to the various reforms undertaken by NSE.

From a modeling perspective our findings justify the following model for NSE closing price

$\text{Log}(P_t) = \text{Log}(P_{t-1}) + R_t$, where $\{R_t\}$ is a random, mean stationary process and the variance of R_t changes from one financial year to another in a cyclic pattern.

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APPENDIX

TABLE 1: SOME BASIC STATISTICS OF DAILY NIFTY RETURNS

Financial year	Maxium daily return	Minimum daily return	Average daily return	Variance of daily returns	Skewness coefficient	p-value	
2001-02	1.586	-2.389	-0.001	0.373	-0.572	0.02	Negative skewed
2002-03	1.669	-1.233	-0.025	0.186	0.091	0.69	symmetric
2003-04	1.850	-1.883	0.101	0.387	-0.349	0.13	symmetric
2004-05	3.461	-5.669	0.024	0.508	-2.2491	0.00	Negative skewed
2005-06	1.373	-1.564	0.089	0.202	-0.631	0.01	Negative skewed
2006-07	2.655	-3.045	0.0167	0.5946	-0.572	0.02	Negative skewed
2007-08	2.919	-3.954	0.0469	0.758	-0.4675	0.052	symmetric
2008-09	2.935	-5.652	-0.081	1.349	-0.337	0.16	symmetric
2009-10	7.047	-2.615	0.099	0.674	2.39	0.00	Positive skewed
2010-11	1.513	-1.418	0.018	0.236	-0.087	0.70	symmetric

TABLE 2: PERCENTAGES OF EXTREME DAILY RETURNS

Financial year	Percentage of daily returns exceeding 2 percent	Percentage of daily returns below -2 percent
2001-02	0	1.22
2002-03	0	0
2003-04	0	0
2004-05	0.39	1.18
2005-06	0.81	1.21
2006-07	0.81	1.21
2007-08	2.4	2.4
2008-09	4.96	3.72
2009-10	1.24	0.41
2010-11	0	0

TABLE 3: p-VALUE OF ADF AND PP TEST FOR UNIT ROOT

Financial year	p-value of ADF test for unit root	p-value of PP test for unit root	
2001-02	0.01	0.01	Stationary
2002-03	0.01	0.01	Stationary
2003-04	0.01	0.01	Stationary
2004-05	0.01	0.01	Stationary
2005-06	0.01	0.01	Stationary
2006-07	0.01	0.01	Stationary
2007-08	Less than 0.01	Less than 0.01	Stationary
2008-09	Less than 0.01	Less than 0.01	Stationary
2009-10	Less than 0.01	Less than 0.01	Stationary
2010-11	Less than 0.01	Less than 0.01	Stationary

AUTOCORRELATION FUNCTION PLOT

Fig1: 2001-02 daily return acf plot

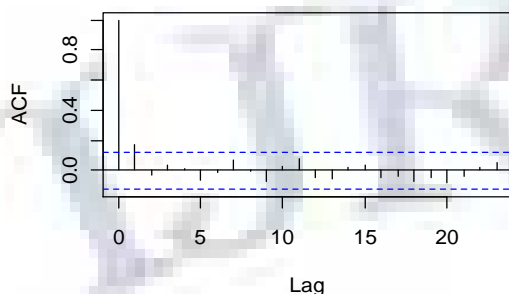


Fig2: 2002-03 daily return acf plot

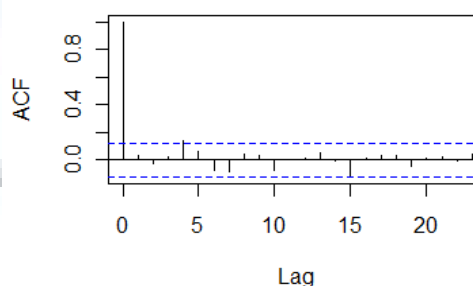


Fig3: 2003-04 daily return acf plot

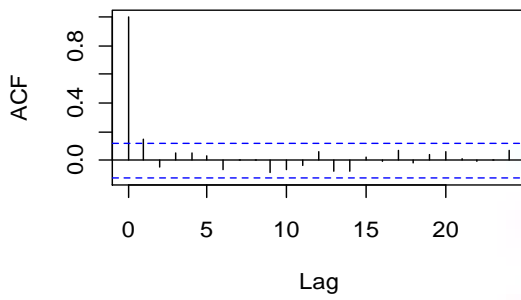


Fig4: 2004-05 daily return acf plot

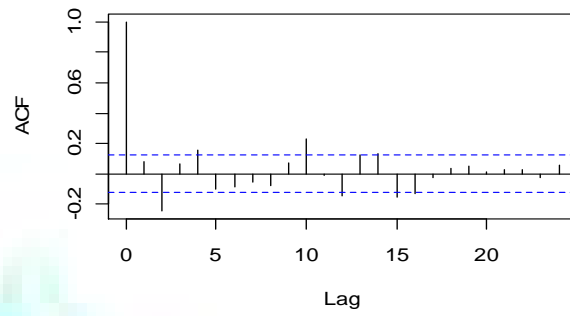


Fig5: 2005-06 daily return acf plot

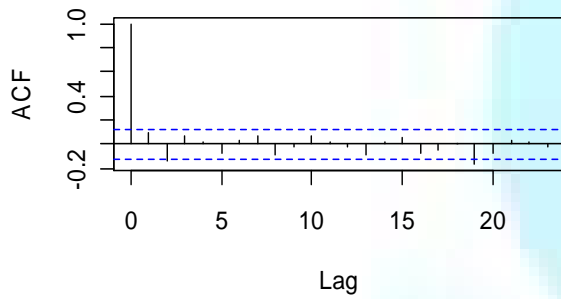


Fig6: 2006-07 daily return acf plot

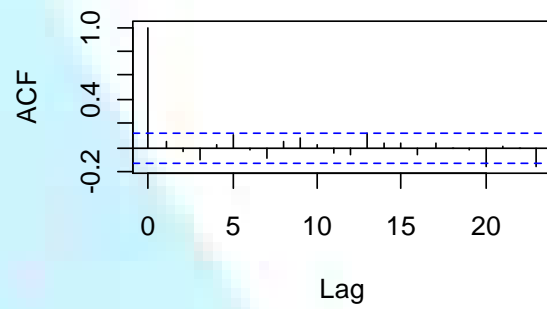


Fig7: 2007-08 daily return acf plot

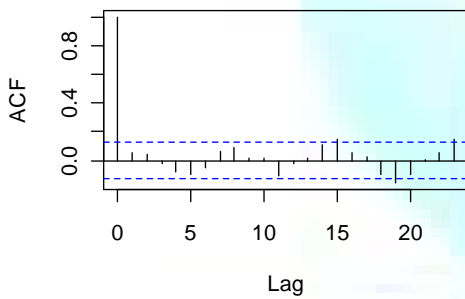


Fig8: 2008-09 daily return acf plot

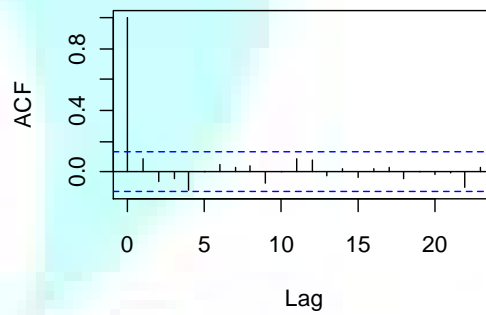


Fig9: 2009-10 daily return acf plot

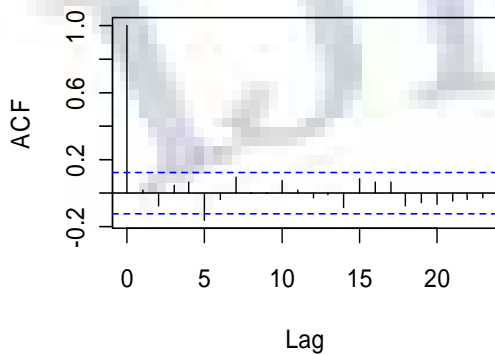
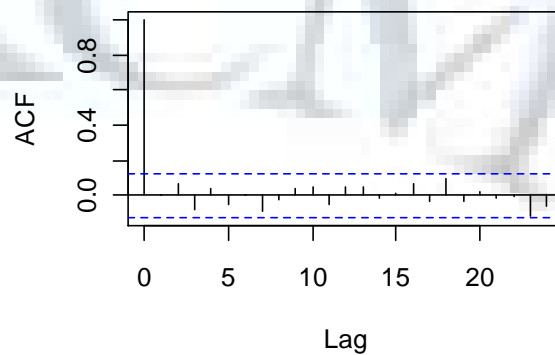


Fig10: 2010-11 daily return acf plot



HEALTH AND SOCIAL PROBLEMS OF INDIAN WOMEN - A STUDY

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ABSTRACT

Indian women have achieved a lot in various areas but in reality they have to still travel a long way. They have to prove themselves that they are on par with men. But their path is full of roadblocks. They are still facing many problems. Malnutrition, poor health, maternal mortality, low education, male dominance, lack of power, early marriage, multiple responsibility, problems of property rights, sexual harassment are some social and health problems of the Indian women. This study is made to highlight these problems of Indian women. The study suggested to bring change in Indian culture and mind set of male members.

KEYWORDS

Indian Women, Health, Social Problems.

INTRODUCTION

Women in India made extraordinary bravery to make the British rulers out of country. Rani Lakshmi Bai, Vannake Vobbavva and Kittur Rani Channamma were showed their extraordinary skill to fight against Britishers to bring independence in India. There are many examples of women who are at the helm in Indian society. India has the largest number of professionally qualified women and the largest number of working women in the world. India has more number of women doctors, surgeons, professors, scientists, sport persons, singers, social saints and industrialists. There is more number of women who participated and presently involved themselves actively in all areas. Mrs. Indira Gandhi served as Prime Minister of India for a period of fifteen years and she is the world's longest women Prime Minister. Similarly, Smt Pratibha Patil becomes first women President of India and Meera Kumara becomes the first women Speaker of Loka Sabha. Mrs. Sonia Gandhi has heading the Indian National Congress. P.T. Usha in sports, Lata Mangeshkar in singing, Arundati Roy in literature, Kiran Majumdar in corporate sector, Mother Teresa in social reforms and Kalpana Chawla in science, etc, reached height in their fields by putting all efforts. They have proved themselves that they are superior in their area.

The constitution of India guarantees to all Indian women equality, no discrimination by the state, equality of opportunity and equal pay for equal work. The government has passed resolution to provide 33 per cent reservation to women in all areas. Today one can see the women participation in Gram Panchayat, Taluk Panchayat and Zill Panchayat and many seats of chairman and president are reserved for women in Karnataka State.

The status of Indian women has low as compared to the status of women in the world. The below table highlight the status of the Indian women.

Social Indicator	India	World
Infant mortality rate per 1000 live births	73	60
Maternal mortality rate per 100000 live births	570	430
Female literacy (%)	58	77.6
Female school enrollment	47	62
Earned income by female member (%)	26	58
Underweight children (%)	53	30
Total fertility rate	3.2	2.9
Women in government (%)	6	7
Contraception usage (%)	44	56
Low birth weight babies (%)	33	17

The table shows that the Indian women are much behind as compared to rest of the world. This indicates that the Indian women are suffering from many health and social problems. Therefore, it is felt to examine what problems the Indian women are facing in this present competitive world.

OBJECTIVES OF THE STUDY

The main objective of the present study is to highlight health and social problems of Indian women.

METHODOLOGY

The present study is based on the secondary data collected from websites, newspapers and books and journals. The conceptual framework of health and social problems of Indian women is developed based on the collected data.

ANALYSIS OF HEALTH AND SOCIAL PROBLEMS OF INDIAN WOMEN

Women in India have been ill treated from the beginning. They are considered as weak part of the society and accordingly low treatment as compared to men. Male is treated on high priority even in taking food. Women are the one who eat last and least in the family. The women in India are prejudiced from the birth itself. They are not breastfed for long and female are not given proper attention in health and education. The workload on women is much higher than their counterpart. She has to meet the requirement of many people in the family at the same time. She has the multiple responsibility of taking care of children, husband and old age people in the family. In view of these, the following are the some important problems of Indian women.

MALNUTRITION

Generally in India, women are the one who eat last and least in the whole family. So they eat whatever is left after men folk satiated. As a result most of the times their food intake does not contain the nutritional value required in maintaining the healthy body. In villages, sometimes women do not get to eat the whole meal due to poverty. The UNICEF report of 1996 clearly states that the women of South Asia are not given proper care, which results in higher level of malnutrition among the women of South Asia than any where else in the world. This nutritional deficiency has two major consequences on women. Firstly they become anemic and secondly they never achieve their full growth, which leads to unending cycle of undergrowth as malnourished women cannot give birth to a healthy baby.

POOR HEALTH

The malnutrition results in poor health of women. The women of India are prejudiced from the birth itself. They are not breastfed for long. The women want to get pregnant as soon as possible to get male child which decreases the caring period to the female child. Women cannot go anywhere on their own if they want

and they have to take the permission of male member of family or have to take them along. This results in decrease in women's visit to doctors and she could not pay attention to her health.

MATERNAL MORTALITY

The mortality rate in India is highest in the world. The malnutrition and early marriage leads to gynecological problems in women. Further, early marriages leads pregnancies at younger age that makes them difficult to bear the burden of the child. The gynecological problems some times may become so serious that it may ultimately lead to death of women during delivery.

LACK OF EDUCATION

Women in India never got its due share of attention in education. They are supposed to fulfill domestic duties and education becomes secondary for them. The scenario in urban areas has changed a lot and women are opting for higher education. However, around 70 per cent of Indian population residing in villages.. The people of villages consider girls to be curse and they do not want to waste money and time by sending them to schools. They arrange marriage of their daughter immediately after maturity. The lack of education leads for many problems. Mother cannot look after her children properly and she is not aware of the deadly diseases and their cure. An uneducated person does not know the importance of health and hygiene.

MISTREATMENT

Women in India are subject to physical and mental violence. They are working more than men but the reward for them is very less. The women are not safe either at home or at workplace. Every hour a woman is raped in India and every 93 minutes a woman is burnt to death due to dowry problem. The women are mistreated even with lot of development in the Act.

OVERWORKED

Indian women work more than men but their work is hardly recognized. Their household duties are never counted as a work. The women working in a field to support her husband will also not counted as a work. A study conducted by Mies in 1986 states that in Andhra Pradesh a woman works around 15 hours a day during the agricultural season whereas a male work on an average for around 7-8 hours.

LACK OF POWER

In India a large percentage of women do not have power. They have no power to take decisions independently even related to their own life. They have to take permission of male members for each and every issue. They don't have any say in important household matters and not in matter of their own marriage.

MARRIAGE

The marriage of women is mainly fixed by the parents and old age people of the family in India. The girl is not consulted but is told to marry a boy whom her family has chosen. They are taught to abide by the whims and fancies of their husbands. Going against the wishes of husband is considered to be a sin. In marriage husband has always the upper hand.

DOWRY

Dowry is a serious issue. Courts are flooded with cases related to death due to dowry harassment by husband and in laws. Nowadays parents have to give hefty amount as dowry to boy at the time of marriage whether they can afford it or not. If a girl brings large amount of dowry she is given respect and is treated well in her new home and if she does not bring dowry according to expectations of her in laws then she has to suffer harassment. Due to this evil practice, many newly wed women of India have to lose their lives.

FEMALE INFANTICIDE/FOETICIDE

The sex of the unborn baby is determined with the help of technology and if it is a girl child then it is aborted down. In this entire procedure woman do not have any say and she has to act according to the wish of her husband even if she does not want to abort.

DIVORCE

The divorce rate in India is not so high as compared to western countries but it does not mean that marriages are more successful here. The reason behind low level of divorce rate is that it is looked down by the society. It is regarded as the sign of failure of marriage, especially of women. She is treated as if she has committed some crime by divorcing her husband.

LAND AND PROPERTY RIGHTS

The women do not own any property in their own names and do not get a share of parental property in many families. They have no share in ancestral property as male in the past. However, after amendment of Hindu Law, they are getting share in ancestral property. The problem has risen due to share of property with male members in many families. The cordial relationship with brothers and sisters has declined.

CRIMES AGAINST WOMEN

Police records show high incidence of crimes against women in India. The National Crime Records Bureau reported in 1998 that the growth rate of crimes against women would be higher than the population growth rate by 2010. Official statistics show that there has been a dramatic increase in the number of reported crimes against women.

SEXUAL HARASSMENT

The sexual harassment has been rising at work place in Indian society. It is due to the influence of western culture on Indians.

CONCLUSION

Many women in India have reached to the height in different areas of Indian society. However, more numbers women are facing one or other problems from Indian culture. The culture of India has still traditional which don't accept change. Therefore, it is very essential to bring change in Indian culture to accommodate changes that are taking place in the world. The women should be treated on par with men because they also having life. There should not be any discrimination between men and women. More number of girls should given compulsory education to minimize the evils of the society. In addition, it is necessary to provide more reservation by amending the laws.

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ANTECEDENTS OF CRM IN HIGHER EDUCATION

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ABSTRACT

Higher education today is undergoing a more radical transformation than perhaps any other aspect of our culture. Educational institutions worldwide are undergoing fundamental shifts in how they operate and interact with their "customers": students, alumni, faculty members, and staff members. The quality of knowledge generated with higher education institutions and its availability to wider economy is becoming increasingly critical to national competitiveness. New technology based tools for gathering and disseminating knowledge have become central element of today's education. Technological, economic, sociological, and governmental forces are altering education dramatically, impacting its institutions, teachers, students, funding sources, and basic function in society. To unlock potential and helping talented people to gain advanced training whatever their background requires customer-centric approach to education. The paper describes the various antecedents of customer relationship management in higher education. The author also conducted a survey of two types of respondents to support the literature and findings of the same have been presented here.

KEYWORDS

Antecedents, customer, higher education, relationship, market orientation.

CUSTOMER RELATIONSHIP MANAGEMENT IN HIGHER EDUCATION

Customer relationship management (CRM) is all about satisfying and retaining the customer by providing the perquisites he/she desires for. Academic institutions are themselves not different from any other organizations. Whether they are government owned or self-financed private institutions; almost all educational institutions focus on not only to impart state-of-the-art education to their students, but also have to maintain relations with their working staff, administrators, companies, vendors and with their primary customers - students. CRM plays an increasingly important role in maintaining such relationships in these organizations.

Even though successful completion and enhancement of students' education are the reasons for existence of higher educational institutions, college administrators tend to focus disproportionately more time on programs for attracting and admitting students. Thereafter satisfying the admitted students is much more important for retention and relationship management.

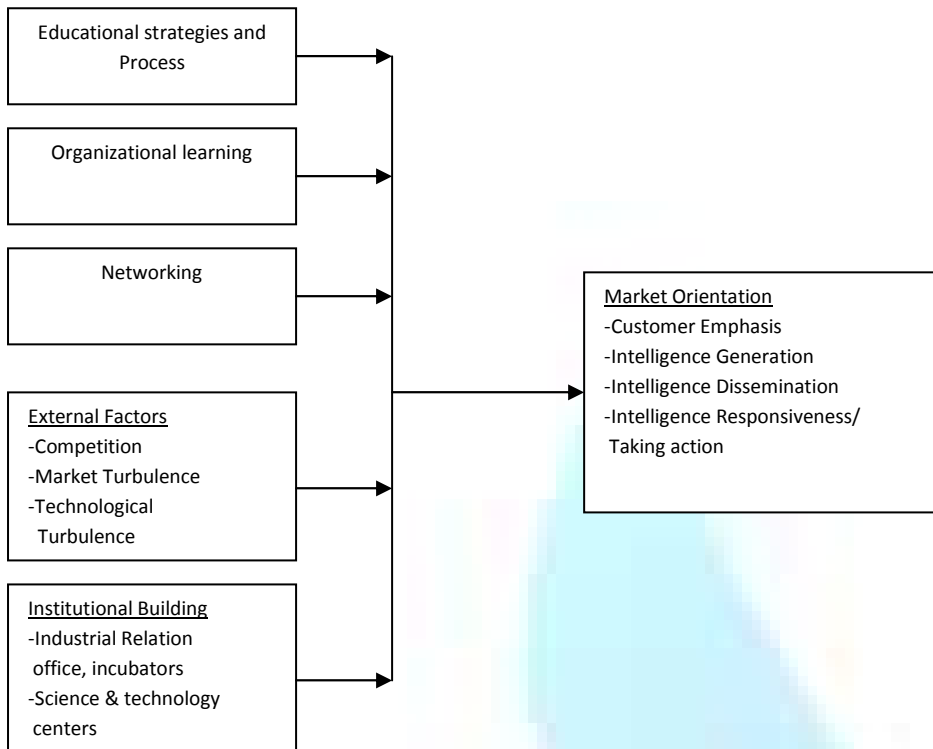
ANTECEDENTS OF CRM IN HIGHER EDUCATION

This section has focused on the antecedents of market orientation and specifically identifies the principal types of internal and external factors that affect the extent to which a higher education institution is able successfully to achieve market orientation and thus effectively manage the relationships with students. The aim purpose of this part is to develop, identify and review the principle antecedents/determinants that foster or discourage market orientation in higher education institute. Slater and Narver (1995) argue that institutions should aim instead to become learning-oriented if they are to compete successfully in the long run. However, given that a "market orientation is the principle cultural foundation of the learning organization." Indeed Slater and Narver (1995) state that market orientation is inherently a learning orientation. Building upon this line of argument, Sinkula, Baker, and Noordewier (1997) call for research that explores further the relationships between learning orientation, market orientation and organizational performance (Farrell, 2000).

Fakhry et al. (1999) cited institution-building as an appropriate approach for restructuring higher education to make the transition to a market economy. They address this from the perspective of institution-building, viewing enhanced cooperation with and between educational institutes and establishing centers to deliver education and research outreaches as aspects of organizational development that precondition it for success.

In relation to institutional entrepreneurship and building market-oriented institutions in higher education, Kozeracki (1998) noted that the switch to a more entrepreneurial market-oriented way of operating – of being innovative, responsive to the market and of finding new ways to make money – began in the business world and is now spreading to the non-profit sector, including academia. The approach taken by universities generally focuses on generating revenue through research collaborations with government and industry. The types of organizations that have existed for this purpose include: (1) licensing and partnering offices, to assist faculty members and the universities in obtaining patents, trading licenses and seeking commercial outlets for their research; (2) small business development centers, to provide technical assistance for new business start-ups or technical support in management, new product development and process innovation to existing companies; (3) research and technology centers, which stimulate research and technology transfer in a particular area of technology, usually under a joint university-industry umbrella; (4) business incubators, which provide facilities and/or services to multiple businesses in a related field of technology; and (5) investment/endorowment offices, which invest the university's financial resources in start-up companies or spin-off enterprises based upon university generated technology. In accordance with their impacts of establishing an industrial relations office mentioned above, incubators and science and technology centers are investigated. Taylor and Fransman (2004) when exploring the role of higher education institutions as agents of development and social change, focus on capacity development through curriculum development and facilitating the development learning and cooperation through networking. Finally, since higher education is organized around a matrix of relationships that are political, bureaucratic, collegial and increasingly economic (Kozeracki, 1998). As Fakhry et al. (1999) asserted the external environment in which organization operate in highly complex and extremely volatile. As a result, these external environmental factors are perhaps even more influential in determining the level of market orientation (Wood and Bhuian, 1993). Hence, Sisodia and Wolfe (2000) argued that market turbulence, technological turbulence, the degree of competition and the general economy all interact in a complex manner that can have an enormous impact on market orientation in higher education. Competition, market turbulence and technology can be consider as the main external factors, that have an influence on determining the level of market orientation of higher education. Figure 1.1 displays the framework of market orientation, which is divided into two parts.

FIGURE 1.1: ANTECEDENTS OF CRM AND MARKET ORIENTATION IN HIGHER EDUCATION



Source: Wood and Bhuian (1993), Zebal (2003)

The first part of the figure presents the antecedents/ determinants/ barriers/ predictors/ conditions that influence the various customer relationship management practices and the level of market orientation; the second part shows the market orientation and its components to implement CRM practices more effectively. Market orientation lies at the core of this framework and this, involves customer emphasis, intelligence generation, intelligence dissemination and intelligence responsiveness or taking action. The figure shows that the CRM strategies of an institution are determined by several internal and external factors. It indicates that organizational learning, educational strategies and process, networking, establishing an industrial relation office, incubators and a science and technology park are all internal factors or internal antecedents. Factors pertaining to competition, market turbulence and technological turbulence are external factors or external antecedents.

RESULTS OF SURVEY

From the literature review and discussion with experts in the field different antecedents of customer relationship management and market orientation in higher education have been identified and presented before the respondents to indicate their opinions. Two sets of questionnaires were prepared one for students and another one for directors/administrators. The questionnaires related to students (N=400) and director/administrators (N=40) were put forwarded to respondents of different management institutes and observations are presented in Table 1.1.

To fulfill the objectives of the study both descriptive as well as inferential statistical techniques were applied. In the descriptive, Means and Standard Deviation were calculated and to test the significance level of the difference between the Means of the criterion variables Mann-Whitney Test and Karl Pearson’s Coefficient of Correlation were applied.

TABLE 1.1: ANTECEDENTS OF CRM IN HIGHER INSTITUTES

S. No.	Variables	Mean Scores (N=400)	Std. Dev. Value (N=400)	Mean Scores (N=40)	Std. Dev. Value (N=40)
1	Learning Approaches	4.01	0.215	4.09	0.186
2	Qualified and Experienced Faculty	4.01	0.377	3.95	0.293
3	Soft skills development activities	3.87	0.682	3.95	0.661
4	Student support services	3.74	0.709	3.70	0.821
5	Training & Placement	3.91	0.197	3.77	0.395
6	Infrastructural Facilities	3.84	0.654	3.85	0.749
7	Well placed IT requirements	3.35	1.092	3.59	1.132

Note: Std. Dev. indicates Standard Deviation Value
N indicates total number of respondents

Source: Computed on the basis of Field Data

The results of the table indicates that according to the responses of students (N=400) learning approaches (Mean = 4.01, Std. Dev. = 0.215), qualified and experienced faculty (Mean = 4.01, Std. Dev. = 0.377), Training and placement (Mean = 3.91, Std. Dev. = 0.197) have been more value by the respondents in comparison to other antecedents and determinants such as, soft skills development activities (Mean = 3.87, Std. Dev. = 0.682), infrastructural facilities (Mean = 3.84, Std. Dev. = 0.654), student support services (Mean = 3.74, Std. Dev. = 0.709), and well placed IT requirements (Mean = 3.35, Std. Dev. = 1.092). The results of standard deviation values indicate that except well placed IT requirements (1.092) the respondents are very much consistent in their opinions.

The results of the table also indicates the responses of directors/administrators (N=40) about the various antecedents and determinants of CRM in management education and as per their responses learning approaches (Mean = 4.09, Std. Dev. = 0.186), qualified and experienced faculty (Mean = 3.95, Std. Dev. = 0.293), and soft skills development activities (Mean = 3.95, Std. Dev. = 0.661) have been given more value in comparison to infrastructural facilities (Mean = 3.84, Std. Dev. = 0.749), training and placement (Mean = 3.77, Std. Dev. = 0.395), student support services (Mean = 3.74, Std. Dev. = 0.821), and well placed IT requirements (Mean = 3.59, Std. Dev. = 1.132). As far as the standard deviation values are concerned, it is evident that in most of cases, the respondents are consistent in their opinions about the different antecedents and determinates of CRM in management education.

For testing the difference level of the mean criterion in the responses of the students (N=400) and directors/administrators (N=40) about the antecedents and determinants of CRM management institutes Mann-Whitney Test was applied. High value (Mann-Whitney Test Value closer to 1.000) indicates that there is not any significant difference between the opinions of both of the respondents (Students and Directors/Administrators) while less value indicates (Mann-Whitney Test Value closer to 0.000) that there is a significant difference between the opinions of respondents (Table 1.2).

TABLE 1.2: RELATIONSHIPS AMONG THE RESPONSES OF RESPONDENTS ABOUT ANTECEDENTS OF CRM IN HIGHER INSTITUTES

S. No.	Variables	Mean Scores (N=400)	Mean Scores (N=40)	Significance level of Mann Whitney Test
1	Learning Approaches	4.01	4.09	0.862 **
2	Qualified and Experienced Faculty	4.01	3.95	0.723 **
3	Soft skills development activities	3.87	3.95	0.589 **
4	Student support services	3.74	3.70	0.887 **
5	Training & Placement	3.91	3.77	0.679 **
6	Infrastructural Facilities	3.84	3.85	0.716 **
7	Well placed IT requirements	3.35	3.59	0.441*

Note: *, ** indicate Mann-Whitney Test value is significant at 5% and 1% respectively.

Source: Computed on the basis of Field Data

The test results indicate that offering key learning facilities to students (0.862), arrangement of qualified and experienced faculty (0.723), conducting activities which enhance soft-skills of students (0.589), providing different support services to students (0.887), making required efforts for training and placement of students (0.679), fulfilling infrastructural requirements which support other activities (0.716), and well placed information technology requirement (0.441), have been identified as the key antecedents and determinants of customer relationship management in management institutes and Mann-Whitney Test value indicates that both the respondents are having similar opinion about these key dimensions.

CONCLUSION

It is highly important to understand that implementation of customer relationship management practices do not enable a quick win. It is a long-term approach that has to be adopted at a strategic level. Whilst the value of customer relationship management has been identified by management institutes, they are yet to look at the bigger picture and understand all of associated benefits that would enable their business strategies to be successful. Those responsible for delivery are perhaps the most informed about these strategic benefits yet the transformation is long-drawn-out process.

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HUMAN CAPITAL MANAGEMENT ISSUES AND POSSIBILITIES OF MSMES - A STUDY ON SELECT UNITS IN BANGALORE

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ABSTRACT

The importance and contribution of the MSME sector to the economic growth and prosperity is well established. Their role in terms of employment creation, upholding the entrepreneurial spirit and innovation has been crucial in fostering competitiveness in the economy. Towards meeting the national developmental objective of a growth rate of over 9% on a sustained basis, it is imperative for the industrial sector to grow at a faster pace supported by a vibrant MSME sector. Towards this Government's policy initiatives like enactment of the new Micro, small and medium enterprises development act, 2006, pruning of reserved SSI list, advising foreign investment to increase their flow of credit to the SME sector, are all initiatives towards boosting entrepreneurship, investment and growth. Today Small and Medium entrepreneurs are receiving attention of planners, policy makers, social scientist, economist, industrialist, Govt and financial institutions. A small enterprise do not have the luxury of a workforce as an MNC. Many a times its very challenging to hire efficient work force and to retain them. Most SMEs lack an efficient system of people management. In this context the study intends to find out the people management issues of small scale sector and measures to overcome the same.

KEYWORDS

Developmental needs, Entrepreneur, HR issues, Training.

INTRODUCTION

Assessing the entrepreneurial potential of our people is crucial for faster economic development. The potential contribution of Small enterprises both in developed and developing countries has been realized in today's world. A healthy small business sector is rightly considered to be the backbone of any developed economy. Entrepreneurship training in most countries of the world is being increasingly tried to promote local entrepreneurship and accelerate the pace of small enterprise development. Even in the case of tightly controlled economies in Eastern Europe, people are anticipating that small business and entrepreneurship will lead the way to new economic development. Developing economies like India, China, Pakistan, Srilanka, Malaysia and many other South Asian countries have always considered the small business sector as an important sector of the economy. But most of the developing countries suffer from non-availability of authentic economic data. The developing countries also suffer from lack of proper consideration of current models of entrepreneurship development. Plaschka and Welsch (1990), suggest that the development of entrepreneurship is the result of coordination of internal and external components facing entrepreneurs. Internal components include factors such as individual characteristics of the employees, financial resources and firm characteristics such as systems of production, organization and marketing, external components include factors such as: Government policies, laws of the country, location infrastructure, availability of skilled labour force, the presence of venture capital etc. The favorability and un-favorability of internal and external components can influence the entrepreneur's ability to create viable organizations.

Small and medium enterprises (SMEs) are primarily companies whose headcount or turnover falls below certain limits.

The abbreviation SME occurs commonly in the European Union and in international organizations, such as the World Bank, the United Nations and the WTO. The term small and medium-sized businesses or SMBs is predominantly used in the USA.

EU Member States traditionally have their own definition of what constitutes an SME, for example the traditional definition in Germany had a limit of 250 employees, while, for example, in Belgium it could have been 100. But now the EU has started to standardize the concept. Its current definition categorizes companies with fewer than 10 employees as "micro", those with fewer than 50 employees as "small", and those with fewer than 250 as "medium" Small medium organizations need to have between 20-500 employees. By contrast, in the United States, when small business is defined by the number of employees, it often refers to those with fewer than 100 employees, while medium-sized business often refers to those with fewer than 500 employees. Both the US and the EU generally use the same threshold of fewer than 10 employees for small offices (SOHO). In most economies, smaller enterprises are much greater in number. In the EU, SMEs comprise approximately 99% of all firms and employ between them about 65 million people. In many sectors, SMEs are also responsible for driving innovation and competition. Globally SMEs account for 99% of business numbers and 40% to 50% of GDP.

In India the definition for small-scale industrial undertakings has changed over time. Initially they were classified into two categories- those using power with less than 50 employees and those not using power with the employee strength being more than 50 but less than 100. However the capital resources invested on plant and machinery buildings have been the primary criteria to differentiate the small-scale industries from the large and medium scale industries. An industrial unit can be categorized as a small-scale unit if it fulfils the capital investment limit fixed by the Government of India for the small-scale sector.

As per the latest definition which is effective since December 21, 1999, for any industrial unit to be regarded as Small Scale Industrial unit the following condition is to be satisfied:

Investment in fixed assets like plants and equipments either held on ownership terms on lease or on hire purchase should not be more than Rs. 10 million. However the unit in no way can be owned or controlled or ancillary of any other industrial unit.

The traditional small-scale industries clearly differ from their modern counterparts in many respects. The traditional units are highly labour consuming with their age-old machineries and conventional techniques of production resulting in poor productivity rate whereas the modern small-scale units are much more productive with less manpower and more sophisticated equipments.

Khadi and handloom, sericulture, handicrafts, village industries, coir, Bell metal are some of the traditional small-scale industries in India. The modern small industries offer a wide range of products starting from simple items like hosiery products, garments, leather products, fishing hook etc to more sophisticated items like television sets, electronics control system, various engineering products especially as ancillaries to large industrial undertakings.

Nowadays Indian small-scale industries (SSIs) are mostly modern small-scale industries. Modernization has widened the list of products offered by this industry. The items manufactured in modern Small-scale service & Business enterprises in India now include rubber products, plastic products, chemical products, glass

and ceramics, mechanical engineering items, hardware, electrical items, transport equipment, electronic components and equipments, automobile parts, bicycle parts, instruments, sports goods, stationery items and clocks and watches.

Since independence the Government of India has nurtured this sector with special care with the following aims:

1. To develop this sector as a major source of employment.
2. To encourage decentralized industrial expansion.
3. To ensure equitable distribution of income.
4. To mobilize capital investment and entrepreneurship skills.

SSI Sector in India creates largest employment opportunities for the Indian populace, next only to Agriculture. It has been estimated that 100,000 rupees of investment in fixed assets in the small-scale sector generates employment for four persons.

GENERATION OF EMPLOYMENT - INDUSTRY GROUP-WISE

Food products industry has ranked first in generating employment, providing employment to 0.48 million persons (13.1%). The next two industry groups were Non-metallic mineral products with employment of 0.45 million persons (12.2%) and Metal products with 0.37 million persons (10.2%).

In Chemicals & chemical products, Machinery parts except Electrical parts, Wood products, Basic Metal Industries, Paper products & printing, Hosiery & garments, Repair services and Rubber & plastic products, the contribution ranged from 9% to 5%, the total contribution by these eight industry groups being 49%. In all other industries the contribution was less than 5%.

THE SME ADVANTAGE TO ECONOMIC GROWTH

PROBLEMS OF INCREASING UNEMPLOYMENT

Increasing unemployment is the most serious & chronic problem of the Indian economy. At the beginning of the seventh five- year plan, the backlog of unemployment was estimated to be around 44 million persons. Labour force during 1989 was estimated to be around 44 million persons.¹ Emphasis on modernization which usually results in automation, use of high technology, and technology up gradation initiated during 1980s and the structural changes introduced by the government during 1991 gave rise to capital intensive industries than labour intensive. In this context after globalization lot of opportunities have opened up for small scale units, thereby motivating people to opt for self-employment. Thus it will help in solving the problem of increasing unemployment.

HARNESSING LOCALLY AVAILABLE RESOURCES & ENTREPRENEURSHIP

India is considered to be very rich in natural resources. A few large scale industries started by entrepreneurs from outside the state in economically backward areas may help as models of pioneering efforts, but ultimately the real strength of industrialization in backward areas depends upon the involvement of local entrepreneurship in such activities. Increased activities of local entrepreneurs will also result in making use of abundantly available local resources.

BALANCED ECONOMIC GROWTH

Large scale industries can only be started with huge investment which is either available to well-established industrial houses or need to be drawn from public exchequer. Also, promotion of such industries does not help in reducing disparities of income & wealth. On the other hand, an important advantage of small scale enterprises is that they can be started with meager financial resources and little or no previous experience or entrepreneurial background.

REDUCING THE UNREST AND SOCIAL TENSION AMONGST YOUTH

Many problems associated with youth unrest and social tensions are rightly considered to be due to youth not being engaged in productive work. In the changing environment where we are faced with the problem of recession in wage employment, opportunities, alternative to wage career is the only viable option. The country is required to divert youth with latent entrepreneurial traits from wage career to self-employment career. These steps would help in defusing social tension and unrest amongst youth.

EMERGING HIGH GROWTH AND PRIORITY AREAS

India as a country has strengths in certain areas and these are emerging high growth areas in recent years. Some of the high growth and priority areas are discussed below:

ELECTRONICS AND INFORMATION TECHNOLOGY INDUSTRY

The field of electronics has opened up new vistas of enormous proportion in all facets of human activity. Electronics has entered into all activities of development. Such being the case, venture capital investment opportunities in electronics offers tremendous scope for exploitation. Due to fast changes taking place, professional entrepreneurs stand greater chances of success in this field. The design techniques and products in the field of electronics are highly volatile in nature and tend to change at an extremely rapid rate. Thus, any attempt at evolving a scenario for the type of opportunities which would emerge in the field of electronics can, at best be an intelligent and informed guess work.

Other sub-areas where innovative products could be developed are:

- Consumer electronics
- Electronic instruments
- Computer and peripherals
- Communication & broadcasting equipments

TOOLS & MEASURING INSTRUMENTS

There are many medium and small scale industries engaged in manufacture of cutting tools and measuring instruments. There is great scope for improvement of quality in this area. If Japanese's or Swiss manufactured tools are the benchmark how can our cutting tools & measuring instruments be upgraded to those levels or even surpass them? This will also add to the quality and productivity in other areas of manufacturing. A multiplier effect of development in this area will attract more venture capital investment in this area.

FOOD PROCESSING

The food processing industries is another area of high potential for growth it encompasses industries like fruit and vegetable processing, milk, fish and meat. The industry has a tremendous potential for increasing agricultural productivity, providing significant and widespread employment and contributing significantly to exports. India is the second largest producer of fruits in the world and vegetables after china. We have a long way to go and plenty of opportunities are available to small entrepreneurs in this field.

SERVICE SECTOR

It is a fast growing sector and offers many opportunities for entrepreneurs. Education, training, catering, fast food, hotels, transportation, entertainment, health club, documentation centres, fax, email, sales and marketing, banking and financial services, consultancy Etc. offer enormous opportunities to provide these services in new and unique ways, by efficient utilization of new technologies and resources, to the customers.

Structural changes presently taking place in the Indian economy is making the environment more conducive for growth of small scale entrepreneurs.

Our SSI sector has been rightly protected against competition from domestic large scale industry by the government. But after the privatization and globalization of Indian economy, a process set into order with effect from 1991, has the Government ensured that those items which were banned for production by large scale sector in India were also not imported? The worldwide industrial environment in today's global scenario is characterized with neck deep competition. It is primarily because of the fact that various outfalls of modern or current technological revolution have made it mandatory for every industry to acquire some level of proficiency in these various fields:

- Communication
- Large growth
- Numeric controlled process
- Brand names
- Rapid mass transport
- Costlier domestic infrastructure

COMMUNICATIONS

High tech development in communication technology has made information sharing both exact and penetrative. The market information on raw materials, in terms of their availability and quality, require exactness in information, internet and such facilities has facilitated this online exchange of data. Sometimes this large downloading of data tends to superficially saturate the information seeker with superlative stuff necessitating very costly data analysis system which confuses the SSI.

LARGE GROWTH

In order to cash on the advantages of lowering overheads as a result of large scale operations, that too in the core sector business of company, today's companies are becoming leaner and thinner but creamier organizations. They are tending to shed off business in unrelated areas and consolidate further by utilizing the generated resources through these undiversification activities to graduate their plants to world scales. This provides opportunities for small sector as today almost all activities are outsourced

NUMERIC CONTROLLED PROCESS

A large extent of automation also enables companies to perform and monitor process controls towards maximizing rates of production yields and accuracies. Superior work systems, as a result of computer assisted controls, enable easier and immediate acceptance of the produce, and thus ultimately allow further cost cutting. It has been experienced that partial implementation of modern techniques does not allow commensurate gains, as highlighted above, in relation to the investments. Full implementation of modern technology requires exorbitant investment, is a constraint for small scale entrepreneurs.

BRAND NAMES

The ultimate establishment and popularization of a brand name involves continued inputs in terms of a large scale presence of either the item or its image or both, in front of the consumer. This may require the kind of investments with no guarantee of returns. That is probably why the small scale manufacturers have not been able to establish brands.

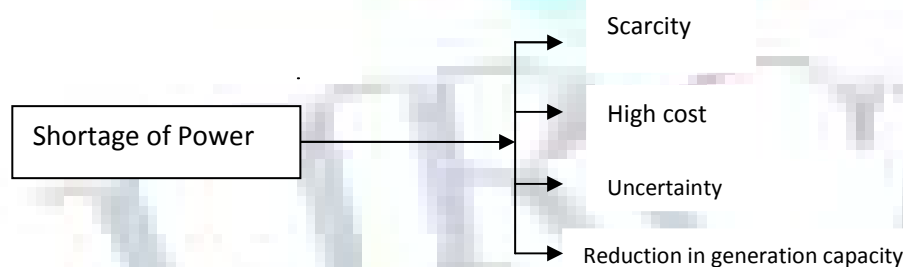
RAPID MASS TRANSPORT

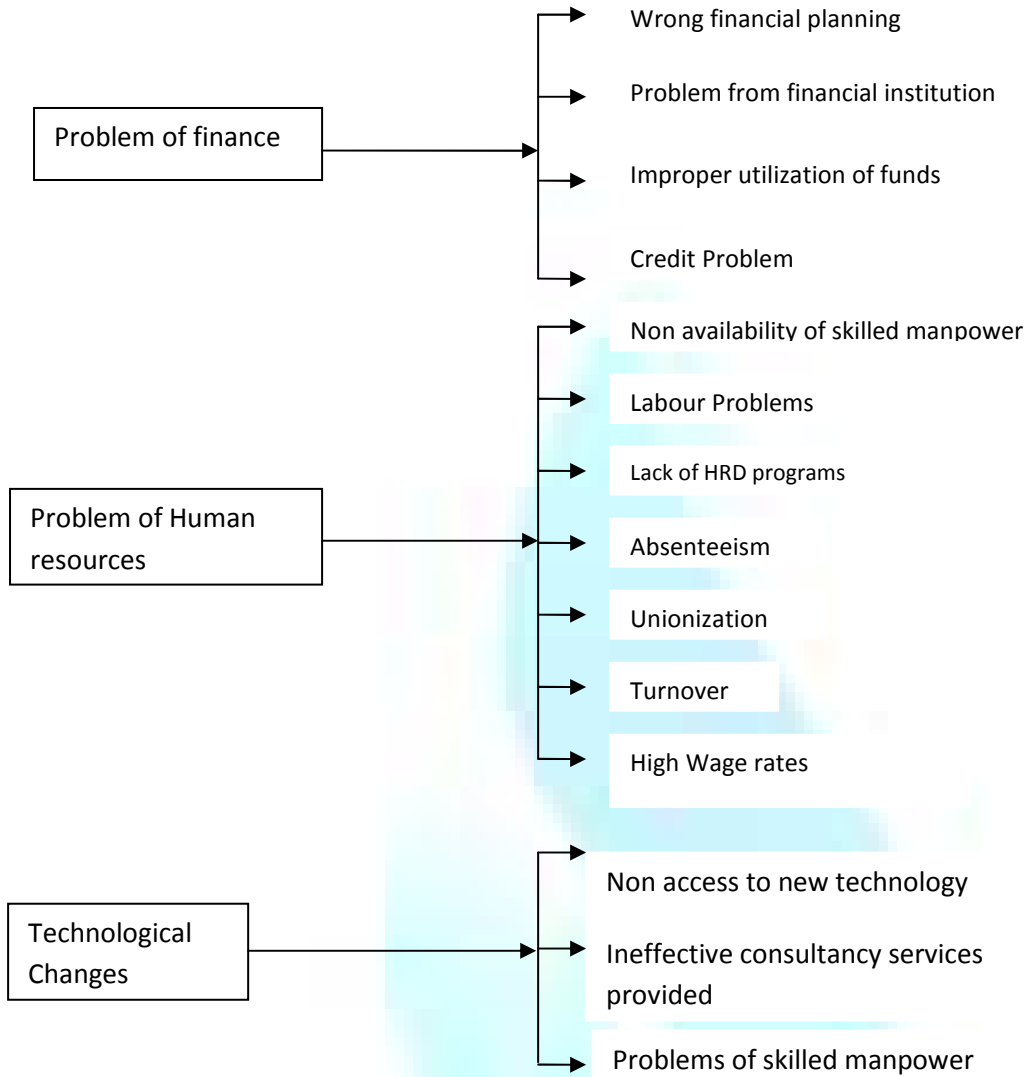
Though developments in efficient transportation like containers, cryogenic vans etc have opened up more opportunities for the Indian industry, the impediments in terms of quality, lack of infrastructure and price have weighed far greater towards losses for small scale sector compared to large scale.

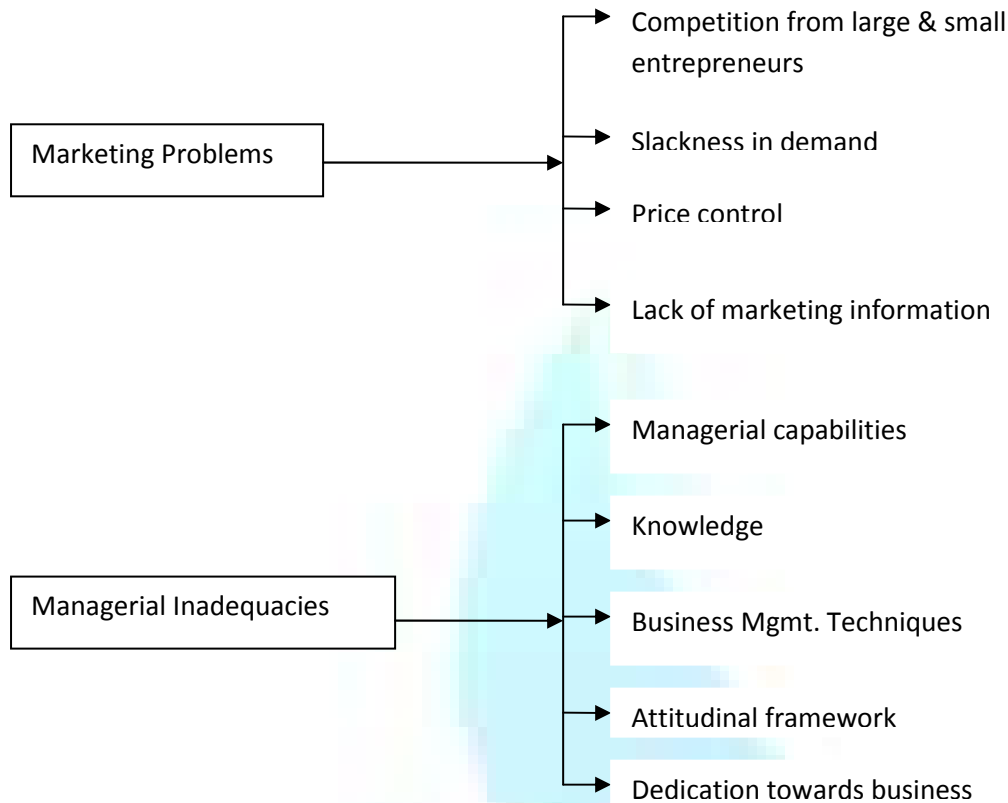
COSTLIER DOMESTIC INFRASTRUCTURE

India as a country is relatively indisposed towards cheaper production in spite of abundant availability of cheap labour. However, until the productivity per capita or per machine is improved, India has to implement better measures to support small scale entrepreneurs (not only in paper) to stand the competition from china, Taiwan and other Asian countries

PROBLEMS OF SMALL BUSINESS







Source: J.S.Saini, S.K.Dhameja, Entrepreneurship and small business, Rawat publications,2003.pg.no.161

PEOPLE MANAGEMENT AND SMES

Human Resource Management refers to the practices and policies need to carry out the “people” or Human resource aspects of a management position including recruiting, screening, training, rewarding & appraising. Many years it was said that capital is the bottleneck for a developing industry but today workforce and the company’s ability to recruit and maintain a good work force. In short Human resource management is equally important as financial resources management for any organization. Intellectual and human resources include the knowledge, training and experience of the entrepreneur and his or her team of employees and managers. It includes the judgement, creativity, vision and intelligence of the individual members of the organization. It even includes the social skills of an entrepreneur. Entrepreneurs who believe in racial and cultural diversity and who can build a workforce around these values make out even better. A new study indicates that diversity interacts with strategy in three ways to improve performance: improved productivity, improved return on equity, and improved market performance.

Human capital includes relationship capital as a subset. Relationship capital refers not to what the organization’s members know but rather to who the organization’s members know and what information these people possess. Networking gives the entrepreneur access to resources without controlling them. This minimizes the potential risk of ownership and keeps overhead down.

There are few rules for successful human resource practices, because each company is different and human resource management is complex. Although standard practices and guide lines are easy to come by, these provide little insight into how to make the venture’s human resource management a source of sustainable competitive advantage.

Each business needs to identify its own managerial strengths and develop a system around them. These practices can be used by others as benchmarks, but real challenge is to customize them to the special context of the enterprise.

LITERATURE REVIEW

Devins D. and Johnson S. 2002¹. This paper draws on a telephone survey of 116 independent SMEs to explore the impact of a variety of training interventions on human resource (HR) practices and business performance in Great Britain. The paper investigates the extent to which targeting such interventions on the managers of SMEs affects the impact and the likelihood of changes in HR practices but finds no statistically significant relationship. The research findings suggest that whilst training interventions have positively contributed to the establishment of HR practices and are perceived by SME managers to have met the needs of the organisation, their impact on a range of business performance indicators is fairly modest. Furthermore the research identifies the propensity of SMEs who are currently engaged in training to become involved in these interventions whilst the majority of SMEs who are not engaged in external training activities remain untouched by the policy intervention.

Reid R.S. and Harris R.I.D. 2002² This study looks at SME spending on training in Northern Ireland. We include a range of human resource management functions, as well as workforce characteristics, the external environment, size, and the impact of changes in ownership status as important determinants of training expenditure in SMEs. Particular attention is also paid to the importance of whether the enterprise is family owned and/or managed. Generally, our results show that HR functions do generally matter; however, workforce characteristics (other than shift working), ownership characteristics and external factors, and even to some extent size, were much less important than expected. What our results do show is that whether the firm is family-owned/managed is a major factor in determining training budgets in SMEs in Northern Ireland.

1 Devins D.; Johnson S, Engaging SME managers and employees in training: lessons from an evaluation of the ESF Objective 4 Programme in Great Britain, Education+training, Volume 44, Numbers 8-9, 2002, page no.370-377

2 Reid R.S.; Harris R.I.D., The determinants of training in SMEs in Northern Ireland, Education+Training, Emerald Group Publishing Limited, Volume 44, Numbers 8-9, 2002, page no.443-450

Lloyd-Reason L., Muller K. and Wall S 2002³ After considering the various dimensions of innovation policy, this paper reviews the experiences of the Czech Republic (CR) in implementing such policies in the post-1990 transition period. Particular attention is paid to the contribution of small and medium-sized enterprises (SMEs) in innovation activities and to the various direct and indirect measures used by the CR in their support. The paper also focuses on the education and training issues and policy prescriptions deemed most appropriate to medium-term goal setting in the CR. It is noted that in order for such education and training policies to be effective, they must be informed by a number of well-established patterns and trends within globalised, knowledge-based economies as well as by the particular circumstances faced by the CR or other transition economies.

SCOPE OF THE STUDY

Jigani houses many small scale units engaged in various industries like garments, precision engineering, component manufacturing etc, The study covers the various small scale units in Jigani, Bangalore to study the HR related issues of the units, HR related areas has never been the main focus of study of small scale industries major studies have been made on finance and marketing aspects of small scale industries hence this study is highly relevant in the current context.

NEED AND IMPORTANCE OF THE STUDY

Small scale entrepreneurs contribute to percentage of the country’s economy hence a study on the human resource aspects of SME’s is important as this would throw light on the following areas:

- Solving problem of increasing unemployment
- Harnessing locally available resources & entrepreneurs
- Bringing economic growth
- Reducing unrest & social tension amongst youth
- Man power requirements & supply in small scale industries
- Retention helps to save and reduce recruitment cost.

OBJECTIVES OF THE STUDY

- a) To identify the availability of skilled manpower.
- b) To identify the issues & problems relating to Manpower aspects of SMEs.
- c) To provide motivational strategies to attract the employees by providing an exciting learning & growth prospectus.

METHODOLOGY

Primary data are obtained by applying the following methods:

- Direct personal interview
- Questionnaire method

Secondary data was collected from books, journals, newsletter of SME association and web resources.

In this study, the sampling technique is the Non-Probability sampling, the units in the population have unequal or negligible, almost no chances for being selected as a sample unit. Then in the second stage in order to select companies SNOW BALL SAMPLING METHOD is been adopted where sample is selected by references or lead, sample obtained by friends list, respondents, relatives, previous companies colleagues.

A sample size of 50 units were chosen for the study.

CONSTRUCTION OF TOOLS

The study was conducted in order to identify the various HR practices in small scale industries. A total of fifty small manufacturing units in Jigani was selected for survey and owners, managers, supervisors were contacted personally soliciting responses. In the survey questionnaire, the respondents were asked to comment on the various HR practices and HR related problems faced by them and also to rank them in terms of importance. Questions about their perception about the possible causes for attrition were also included in the questionnaire. This was followed by the personal interviews with the respondents.

ISSUES AND PROSPECTUS OF HIRING AND RETAINING

The study was conducted with a sample size of 50 units out of which 70% were proprietary in nature, in case of SMEs one interesting factor was that Proprietary form of organisation is preferred to avoid issues of partnership.48% of the units were into subcontracting while a 24% into auto components and a 16 % were into precision engineering business. Only 2% of the sample constituted garment units. As it was easier to approach units engaged in subcontracting of machine parts and bearings than garment unit’s data collection was more focussed on those units. Entry restrictions are more stringent in the garment units.

Majority of the units depend on local recruiting agents which is 44% because it is less costly and the manpower will get very easily. 28% said they employ people referred by existing employees because employee will know the nature of work and they can refer experienced hands in work. Advertisement on notice board and outside the gate of the unit is also used to get prospective employees; with this advertisement the employer will not be incurring any cost. Local recruiting agents and employee referrals are the main source of recruitment as they have databases of locals seeking jobs and are seen as a potential source to get the right skills in the production and maintenance levels.

Shortage of skilled labour and high level of labour turnover at skilled levels is a major blow to MSMEs.

TABLE 1: AVAILABILITY OF SKILLED WORKFORCE IN MSMES

HYPOTHESIS TEST

H₀ = The organization have skilled labour.

H₁ = The organization does not have skilled labour.

Observed value	Expected value	(O-E) ²	(O-E) ² /E
3	2.04	0.9216	0.451765
2	2.04	0.0016	0.000784
1	1.92	0.8464	0.440833
12	12.92	0.8464	0.065511
13	12.92	0.0064	0.000495
13	12.16	0.7056	0.058026
2	2.04	0.0016	0.000784
2	2.04	0.0016	0.000784
2	1.92	0.0064	0.003333
Σ(O-E)²/E			1.022317

Source: Primary data

Calculated value X² = 1.022317

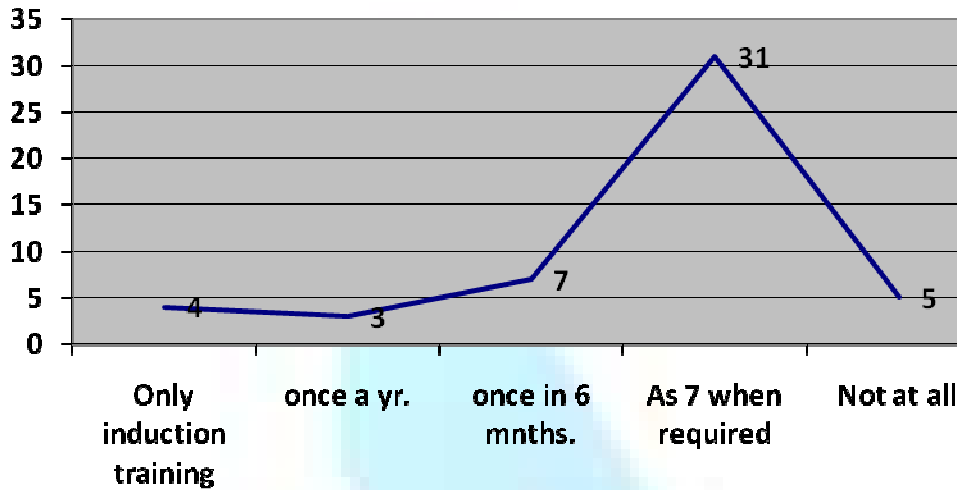
3 Lloyd-Reason L.; Muller K.; Wall S., Innovation and education policy in SMEs: a Czech perspective ,Education &training, Emerald Group Publishing Limited,Volume 44, Numbers 8-9, 2002 , page no.378-387

(r-1) (c-1)
 (3-1)(3-1)
 $2 * 2 = 4$
 Dof = 4

Table value at 5% significance = 9.48773

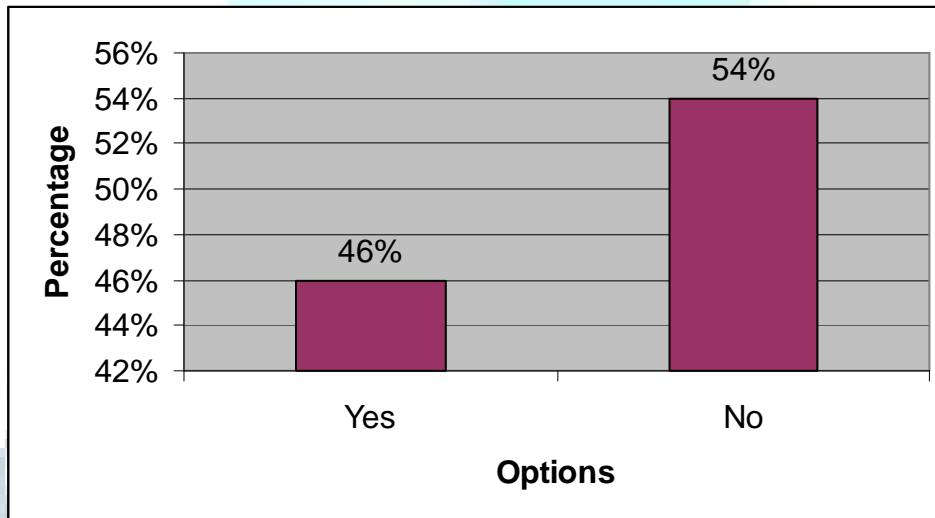
Since the calculated X^2 value is less than table value null hypothesis (H_0) is accepted and the calculated value is less than the table value rejects the alternative hypothesis (H_1). From the above data it is clear that SMEs are looking only for skilled labour, even though sometimes they get unskilled labour. Initially on the job training is provided. The analysis of training done by units as the table below represents states that employees are given training according to the organizational requirement as ongoing training sessions at regular intervals proves to be a costly affair for SMEs.

CHART 1; FREQUENCY OF TRAINING



4% of the units provide training to the employees at the time of induction and induction training is based on job description, whereas a 3% provide once in a year to update their employees to meet the client requirement. A 7% provide training once in 6 months. A majority of 31% provide training to the employees as and when required depending on the client needs. While a 5% do not provide training at all as funds are not available to provide training. Most of SMEs go for on the job training.

CHART 2: EXISTENCE OF PERFORMANCE APPRAISAL SYSTEM



Source: primary data

Performance appraisal system does not exist in majority of 54% of the units. Hence seniority is the basis for salary hikes and promotion. This leads to high labour turnover especially among young workers. Appraisal system and its maintenance are costly and many a times all criteria's are not met all the time, hence evaluation on a system becomes difficult. At the same time its interesting to note that 46% of the respondents are using performance appraisal system. Majority of the units are willing to implement appraisal systems if consultancies are willing to provide it at minimal cost as managers feel it is essential to retain skilled employees in today's competitive environment.

Most of the MSMEs do not accept creative or innovative ideas putforth by their employees and in certain cases were it is accepted and implemented only 32% of the respondents said they reward their employees for the same. Most units are hesitant to change the current system as it would increase their cost overheads and bringing in change would be a herculean task given the constraints of time, funds and resources.

TABLE 2: EXTENT OF COMPLAINTS /ISSUES REPORTED IN MSMES

TESTING OF HYPOTHESIS

H₀ = Complaints and issues are received from employees in the organisation

H₁ = Complaints and issues are not received from employees in the organisation

Observed value	Expected value	(O-E) ²	(O-E) ² /E
1	0.34	0.4356	1.281176
0	0.34	0.1156	0.34
0	0.32	0.1024	0.32
6	4.08	3.6864	0.903529
4	4.08	0.0064	0.001569
2	3.84	3.3856	0.881667
10	12.58	6.6564	0.529126
13	12.58	0.1764	0.014022
14	11.84	4.6656	0.394054
Total			4.665143

Source: Primary data

Calculated value $X^2 = 4.665143$

(R-1) (C-1)

2 * 2 = 4

Dof = 4

Table value = 9.488

Since the calculated X^2 value is less than table value null hypothesis (H₀) is accepted.

CHART 3: AREAS WHERE COMPLAINTS /ISSUES ARE RECEIVED

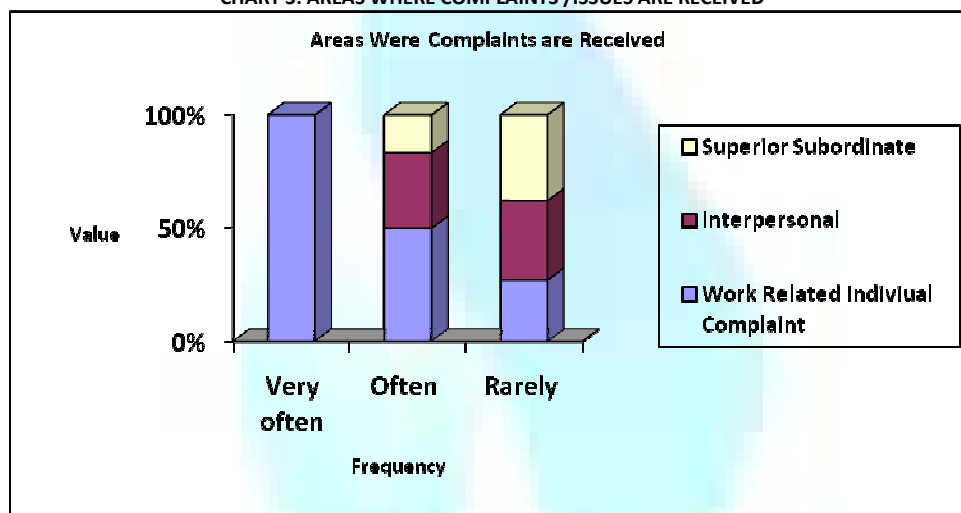


Chart shows that work related individual complaints are on a high compared to interpersonal and superior subordinate related. Hence its clear that interpersonal problems are not main issues at the units which states the rapport among employees.

TABLE 3: LABOUR PROBLEMS IN THE ORGANISATION

Labour Problems	3(High)	2	1(Low)	Total
Absenteeism	25	12	6	43
Negligence	25	14	5	44
Disobedience	26	30	3	59
Union activities	38	0	1	39
Total	114	56	15	185

Source: Primary data

TABLE 4: EXISTENCE OF LABOUR PROBLEMS IN MSMES

TESTING HYPOTHESIS

H₀ = There is problem with labour

H₁ = There is no problem with labour

Observed value	Expected value	(O-E) ²	(O-E) ² /E
7	7.44	0.1936	0.026022
7	7.44	0.1936	0.026022
7	9.92	8.5264	0.859516
10	6.2	14.44	2.329032
3	3.6	0.36	0.1
4	3.6	0.16	0.044444
8	4.8	10.24	2.133333
0	3	9	3
2	0.96	1.0816	1.126667
1	0.96	0.0016	0.001667
1	1.28	0.0784	0.06125
0	0.8	0.64	0.8

Source: Primary data

$\chi^2 = 10.50795$

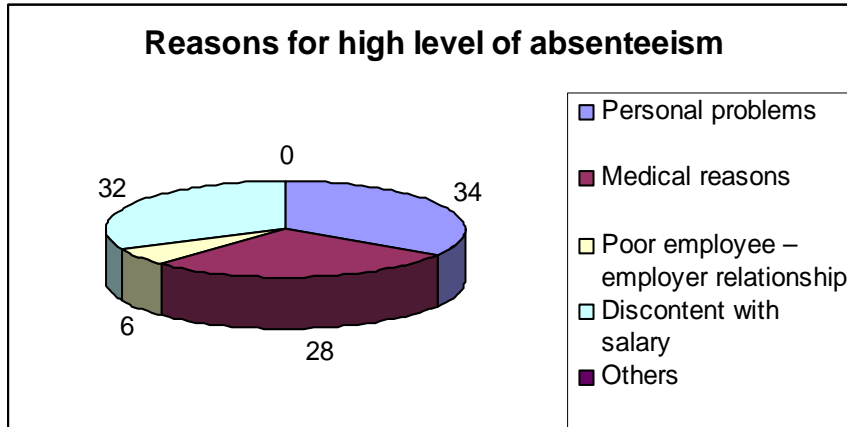
Dof = 6

Table value = 12.592

Since the calculated χ^2 value is less than table value null hypothesis (H_0) is accepted.

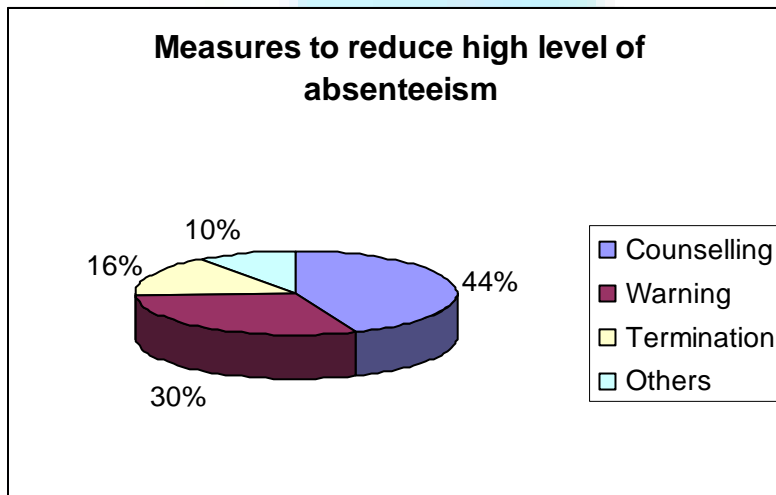
The problem with labour is associated at different levels but union activities related problems are almost nil in most of the organizations. Absenteeism, negligence of duty and disobedience though are comparatively low. Absenteeism still remains a major problem.

CHART 4: REASONS FOR HIGH LEVEL OF ABSENTEEISM



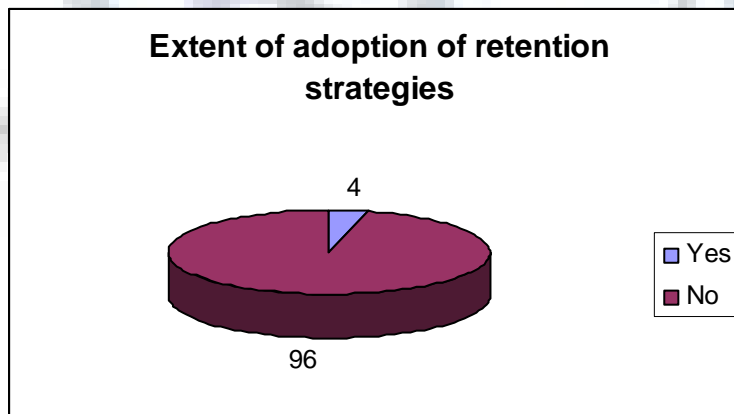
34% employee absenteeism is due to personal problems, many of the employees come from family backgrounds with problems and hence it results in absenteeism, while a 32 % had reasons of discontent with salary, since salary is a main issue in SMEs due to irregularities in fund inflows, a 28% had medical reason, only a 6% responded that poor employee employer relationship was the reason for absenteeism, in most cases employees leave without notice in case of a bad relationship with the employer.

CHART 5



44% counsel their employees for high levels of absenteeism as counselling is a positive way of handling the issue that is resorted as the first step. A 30% warn the employees after first round of counselling, 16% terminate their employees after repeated warnings and when work schedules are not adhered to. While a 10% resort to other measures like wage cuts and suspension. Counselling is a better way than other methods.

CHART 6



Majority of the units do not employ any retention strategies while a 4 % employ strategies like cash award for good work, or lunch on festivals. Implementation of employee retention strategies are difficult due to cost overheads and labour market conditions hence majority do not adopt any such strategies.

FINDINGS

- A majority of the SMEs are in proprietary ship mode and the majority of the employees surveyed belong to permanent category with a majority of male employees as the units surveyed mostly are auto components, IT, electronic components, biotech, precision engineering and others, infact garment industry have a majority of female employees compared to men.
- Most of the SMEs try to recruit skilled labour but have difficulty in getting the right skills because SMEs cannot afford high pay for skilled people, again training unskilled people would add to cost overheads hence SMEs mostly try to hire skilled people from ITI and conduct On-the-Job training for unskilled people.
- Training is also given importance though customer side training is very rarely given. Most of the units conduct in house training for their employees.
- Performance appraisal is not done by most of the units. This system hence is not the basis for promotion or wage hikes. This is based on years of service sometimes the discretion of the management is also the basis for wage hike. Most Units were positive about using consultancy services for implementing performance appraisal system.
- Most management of SMEs does not accept innovative ideas from employees as they consider various factors of cost and investment to implement it may not be feasible. Some management does implement the ideas and if successful reward their employees.
- Complaints are received though not in a frequent manner in most SMEs; most of the units are able to solve such issues through proper counseling and discussion without hindering the working and production. Though at times it takes a little long to settle issues, the management makes sure that it does not affect the work environment.
- Problem with labour is associated more with personal problems; salary is also a major issue for dissatisfaction among employees. Few units have sited medical reasons also as a reason for discontent. Counseling sessions are conducted on the first hand to reduce absenteeism, after one sessions of counseling; employee is warned and later terminated from service.
- SMEs do not have retention strategies as it requires investments in various employee motivation methods which are not affordable by SMEs.

SUGGESTIONS

1. Developing job analysis and writing job description would give more streamlined approach to recruitment.
2. Improving recruitment techniques utilising low-cost employment agencies
3. Job description should be updated according to the clientele
4. Job description should be the basis for training new employees, to bring in focused training.
5. Updation of training records should be done periodically to identify training gaps
6. Training program should include job description, abbreviated task analysis record form, job instruction schedules
7. Developing a pay plan that is internally and externally equitable is as important in a small firm as in a large one.

CONCLUSION

It is no accident that India today operates the largest programme for the development of small industry as in any developing country. The characteristics like decentralized nature of the sector, its small size, indigenous technology, Govt. initiatives, better entrepreneurial spirit has given impetus to the SSI sector accounting to around 95% of industrial units, 40% of the manufacturing sector's output, 36% exports and direct employment to around 18 million people. Being a labour intensive sector the sector has a wide range of opportunities and challenges, with better and progressive initiatives the HR problems can be solved and SMEs can become effective employers providing better opportunities for growth.

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GENERATING FUNCTIONS FOR PELL AND PELL-LUCAS NUMBERS

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ABSTRACT

In this paper, I have derived a list of generating functions for Pell and Pell-Lucas numbers. Exponential generating functions are used to derive combinatorial identities as well as hybrid identities. Generalizations of the results are the main features of this paper.

KEYWORDS

Exponential Functions, Generating Functions, Hybrid Identities.

INTRODUCTION

PELL AND PELL-LUCAS NUMBERS



Define the sequences $\{U_n\}$ and $\{V_n\}$ for all integers n by

$$\begin{cases} U_n = pU_{n-1} + U_{n-2}, & U_0 = 0, U_1 = 1, \\ V_n = pV_{n-1} + V_{n-2}, & V_0 = 2, V_1 = p. \end{cases}$$

For $p = 1$, we write $\{U_n\} = \{F_n\}$ and $\{V_n\} = \{L_n\}$, which are the Fibonacci and Lucas numbers respectively. Their Binet forms, obtained by using

$$F_n = \frac{\alpha^n - \beta^n}{\alpha - \beta} \quad \text{and} \quad L_n = \alpha^n + \beta^n,$$

standard techniques for solving linear recurrences, are

where α and β are the roots of $x^2 - x - 1 = 0$.

For $p = 2$, we write

$$\begin{cases} P_n = 2P_{n-1} + P_{n-2}, & P_0 = 0, P_1 = 1, \\ Q_n = 2Q_{n-1} + Q_{n-2}, & Q_0 = 2, Q_1 = 2. \end{cases}$$

Here $\{P_n\}$ and $\{Q_n\}$ are the Pell and Pell-Lucas Sequences respectively. Their Binet forms are given by

$$P_n = \frac{\gamma^n - \delta^n}{\gamma - \delta} \quad \text{and} \quad Q_n = \gamma^n + \delta^n,$$

where γ and δ are the roots of $x^2 - 2x - 1 = 0$ that is $\gamma = 1 + \sqrt{2}$ and $\delta = 1 - \sqrt{2}$.

GENERATING FUNCTIONS

Let a_0, a_1, a_2, \dots be a sequence of real numbers. Then the function $g(x) = a_0 + a_1x + a_2x^2 + \dots + a_nx^n + \dots = \sum_{n=0}^{\infty} a_nx^n$ is called

the generating function for the sequence $\{a_n\}$. We can also define generating functions for the finite sequence a_0, a_1, \dots, a_n by letting $a_i = 0$ for $i > n$;

thus $g(x) = a_0 + a_1x + a_2x^2 + \dots + a_nx^n$ is called the generating function for the finite sequence a_0, a_1, \dots, a_n .

For example, $g(x) = 1 + 2x + 3x^2 + \dots + (n+1)x^n + \dots$ is the generating function for the sequence of positive integers and

$f(x) = 1 + 3x + 6x^2 + \dots + \frac{n(n+1)}{2}x^n + \dots$ is the generating function for the sequence of triangular numbers 1, 3, 6, 10,

Also $g(x) = 1 + x + x^2 + \dots + x^n + \dots = \sum_{n=0}^{\infty} x^n = \frac{1}{1-x};$ (1)

Thus $\left(\frac{1}{1-x}\right)$ is the generating function for the infinite sequence of ones, whereas

$$f(x) = \frac{x^n - 1}{x - 1} = 1 + x + x^2 + \dots + x^{n-1} \quad ; \text{ Thus } \left(\frac{x^n - 1}{x - 1} \right) \text{ is the generating for the finite sequence of } n \text{ ones.}$$

EQUALITY OF GENERATING FUNCTIONS

Two generating functions $f(x) = \sum_{n=0}^{\infty} a_n x^n$ and $g(x) = \sum_{n=0}^{\infty} b_n x^n$ are equal if $a_n = b_n$ for $n \geq 0$; that is

$$\sum_{n=0}^{\infty} a_n x^n = \sum_{n=0}^{\infty} b_n x^n \Rightarrow a_n = b_n \text{ for } n \geq 0.$$

ADDITION AND MULTIPLICATION OF GENERATING FUNCTIONS

Let $f(x) = \sum_{n=0}^{\infty} a_n x^n$ and $g(x) = \sum_{n=0}^{\infty} b_n x^n$ be two generating functions. Then

$$f(x) + g(x) = \sum_{n=0}^{\infty} (a_n + b_n) x^n$$

$$\text{And } f(x)g(x) = \sum_{n=0}^{\infty} \left(\sum_{i=0}^n a_i b_{n-i} \right) x^n \tag{2}$$

GENERATING FUNCTION FOR P_n :

First, we develop a generating function $g(x)$ for P_n . So, let $g(x) = \sum_{n=0}^{\infty} P_n x^n$;

$$\begin{aligned} g(x) &= P_0 + P_1 x + P_2 x^2 + \dots + P_n x^n + P_{n+1} x^{n+1} + \dots \\ 2xg(x) &= 2P_0 x + 2P_1 x^2 + \dots + 2P_{n-1} x^n + 2P_n x^{n+1} + \dots \\ x^2 g(x) &= P_0 x^2 + \dots + P_{n-2} x^n + P_{n-1} x^{n+1} + \dots \end{aligned}$$

$$\therefore (1 - 2x - x^2)g(x) = P_0 + P_1 x - 2P_0 x = 2x \quad (\text{Since } P_{n+1} = 2P_n + P_{n-1})$$

Using $P_0 = 0$ and $P_1 = 1$, we get

$$\sum_{n=0}^{\infty} P_n x^n = \frac{x}{(1 - 2x - x^2)} \tag{3}$$

Therefore, $\frac{x}{(1 - 2x - x^2)}$ generates the sequence of Pell numbers.

GENERATING FUNCTION FOR $P_{n+1}P_{n+2}$:

Let $g(x) = \sum_{n=0}^{\infty} P_{n+1}P_{n+2}x^n$; so that

$$\begin{aligned} g(x) &= P_1 P_2 + P_2 P_3 x + P_3 P_4 x^2 + P_4 P_5 x^3 + \dots + P_{n+1} P_{n+2} x^n + P_{n+2} P_{n+3} x^{n+1} + \dots \\ 5xg(x) &= 5P_1 P_2 x + 5P_2 P_3 x^2 + 5P_3 P_4 x^3 + \dots + 5P_n P_{n+1} x^n + 5P_{n+1} P_{n+2} x^{n+1} + \dots \\ 5x^2 g(x) &= 5P_1 P_2 x^2 + 5P_2 P_3 x^3 + \dots + 5P_{n-1} P_n x^n + 5P_n P_{n+1} x^{n+1} + \dots \\ x^3 g(x) &= P_1 P_2 x^3 + \dots + P_{n-2} P_{n-1} x^n + P_{n-1} P_n x^{n+1} + \dots \end{aligned}$$

$$\begin{aligned} \therefore (1 - 5x - 5x^2 + x^3)g(x) &= (P_1 P_2 + P_2 P_3 x + P_3 P_4 x^2) - (5P_1 P_2 x + 5P_2 P_3 x^2) - (5P_1 P_2 x^2) \\ &= (2 + 10x + 60x^2) - (10x + 50x^2) - (10x^2) \\ &= (2 + 10x + 60x^2) - (10x + 50x^2) - (10x^2) \end{aligned}$$

$$\text{Thus, } \sum_{n=0}^{\infty} P_{n+1}P_{n+2}x^n = \frac{2}{(1-5x-5x^2+x^3)}$$

GENERATING FUNCTION FOR P_n^2 :

$$g(x) = \sum_{n=0}^{\infty} P_n^2 x^n$$

Let ; so that

$$g(x) = P_0^2 + P_1^2 x + P_2^2 x^2 + P_3^2 x^3 + P_4^2 x^4 + \dots + P_n^2 x^n + P_{n+1}^2 x^{n+1} + \dots$$

$$5xg(x) = 5P_0^2 x + 5P_1^2 x^2 + 5P_2^2 x^3 + 5P_3^2 x^4 + \dots + 5P_{n-1}^2 x^n + 5P_n^2 x^{n+1} + \dots$$

$$5x^2g(x) = 5P_0^2 x^2 + 5P_1^2 x^3 + 5P_2^2 x^4 + \dots + 5P_{n-2}^2 x^n + 5P_{n-1}^2 x^{n+1} + \dots$$

$$x^3g(x) = P_0^2 x^3 + P_1^2 x^4 + \dots + P_{n-3}^2 x^n + P_{n-2}^2 x^{n+1} + \dots$$

$$\begin{aligned} \therefore (1-5x-5x^2+x^3)g(x) &= (P_0^2 + P_1^2 x + P_2^2 x^2) - (5P_0^2 x + 5P_1^2 x^2) - (5P_0^2 x^2) \\ &\quad \left[\because P_{n+1}^2 + P_{n+2}^2 = 5(P_n^2 + P_{n+1}^2) \right] \\ &= (0 + x + 4x^2) - (0x + 5x^2) - (0x^2) = x(1-x) \end{aligned}$$

$$\text{Thus, } \sum_{n=0}^{\infty} P_n^2 x^n = \frac{x(1-x)}{(1-5x-5x^2+x^3)}$$

GENERATING FUNCTION FOR P_n^3 :

$$g(x) = \sum_{n=0}^{\infty} P_n^3 x^n$$

Let ; so that

$$g(x) = P_0^3 + P_1^3 x + P_2^3 x^2 + P_3^3 x^3 + P_4^3 x^4 + P_5^3 x^5 + \dots + P_n^3 x^n + P_{n+1}^3 x^{n+1} + \dots$$

$$12xg(x) = 12P_0^3 x + 12P_1^3 x^2 + 12P_2^3 x^3 + 12P_3^3 x^4 + 12P_4^3 x^5 + \dots + 12P_{n-1}^3 x^n + 12P_n^3 x^{n+1} + \dots$$

$$30x^2g(x) = 30P_0^3 x^2 + 30P_1^3 x^3 + 30P_2^3 x^4 + 30P_3^3 x^5 + \dots + 30P_{n-2}^3 x^n + 30P_{n-1}^3 x^{n+1} + \dots$$

$$12x^3g(x) = 12P_0^3 x^3 + 12P_1^3 x^4 + 12P_2^3 x^5 + \dots + 12P_{n-3}^3 x^n + 12P_{n-2}^3 x^{n+1} + \dots$$

$$x^4g(x) = P_0^3 x^4 + P_1^3 x^5 + \dots + P_{n-4}^3 x^n + P_{n-3}^3 x^{n+1} + \dots$$

$$\begin{aligned} \therefore (1-12x-30x^2+12x^3+x^4)g(x) &= (P_0^3 + P_1^3 x + P_2^3 x^2 + P_3^3 x^3) - (12P_0^3 x + 12P_1^3 x^2 + 12P_2^3 x^2) \\ &\quad - (30P_0^3 x^2 + 30P_1^3 x^3) + (12P_0^3 x^3) \end{aligned}$$

$$\begin{aligned} &\quad \left[\because P_{n+4}^3 - 12P_{n+3}^3 - 30P_{n+2}^3 + 12P_{n+1}^3 + P_n^3 = 0 \right] \\ &= (0 + x + 8x^2 + 125x^3) - (0x + 12x^2 + 96x^3) - (0x^2 + 30x^3) + (0x^3) \\ &= x - 4x^2 - x^3 \end{aligned}$$

$$\text{Thus, } \sum_{n=0}^{\infty} P_n^3 x^n = \frac{x(1-4x-x^2)}{(1-12x-30x^2+12x^3+x^4)}$$

A LIST OF GENERATING FUNCTIONS

Using the above technique and Pell Identities, we can also derive the following generating functions:

$$(i) \frac{1-2x}{(1-2x-x^2)} = \sum_{n=0}^{\infty} P_{n-1}x^n \tag{4}$$

$$(ii) \frac{1}{(1-2x-x^2)} = \sum_{n=0}^{\infty} P_{n+1}x^n \tag{5}$$

$$(iii) \frac{2(1-x)}{(1-2x-x^2)} = \sum_{n=0}^{\infty} Q_n x^n \tag{6}$$

$$(iv) \frac{2(1+x)}{(1-2x-x^2)} = \sum_{n=0}^{\infty} Q_{n+1} x^n \tag{7}$$

$$(v) \frac{-2+6x}{(1-2x-x^2)} = \sum_{n=0}^{\infty} Q_{n-1} x^n$$

$$(vi) \frac{2x}{(1-6x+x^2)} = \sum_{n=0}^{\infty} P_{2n} x^n \quad (\text{Using } P_{2n+2} + P_{2n-2} = 6P_{2n}, n \geq 1)$$

$$(vii) \frac{1-x}{(1-6x+x^2)} = \sum_{n=0}^{\infty} P_{2n+1} x^n \quad (\text{Using } P_{2n+3} + P_{2n-1} = 6P_{2n+1}, n \geq 1)$$

$$(viii) \frac{2(1-3x)}{(1-6x+x^2)} = \sum_{n=0}^{\infty} Q_{2n} x^n \quad (\text{Using } Q_{2n+2} + Q_{2n-2} = 6Q_{2n}, n \geq 1)$$

$$(ix) \frac{2(1+x)}{(1-6x+x^2)} = \sum_{n=0}^{\infty} Q_{2n+1} x^n \quad (\text{Using } Q_{2n+3} + Q_{2n-1} = 6Q_{2n+1}, n \geq 1)$$

$$(x) \frac{2(3-x)}{(1-6x+x^2)} = \sum_{n=0}^{\infty} Q_{2n+2} x^n$$

$$(xi) \frac{2}{(1-6x+x^2)} = \sum_{n=0}^{\infty} P_{2n+2} x^n$$

$$(xii) \frac{5x}{(1-14x-x^2)} = \sum_{n=0}^{\infty} P_{3n} x^n \quad (\text{Using } P_{3n+3} - P_{3n-3} = 14P_{3n}, n \geq 1)$$

$$(xiii) \frac{2-14x}{(1-14x-x^2)} = \sum_{n=0}^{\infty} Q_{3n} x^n \quad (\text{Using } Q_{3n+3} - Q_{3n-3} = 14Q_{3n}, n \geq 1)$$

$$(xiv) \frac{1-x}{(1-5x-5x^2+x^3)} = \sum_{n=0}^{\infty} P_{n+1}^2 x^n$$

$$(xv) \frac{4+5x-x^2}{(1-5x-5x^2+x^3)} = \sum_{n=0}^{\infty} P_{n+2}^2 x^n$$

$$(xvi) \frac{4-16x-4x^2}{(1-5x-5x^2+x^3)} = \sum_{n=0}^{\infty} Q_n^2 x^n$$

$$(xvii) \frac{4+16x-4x^2}{(1-5x-5x^2+x^3)} = \sum_{n=0}^{\infty} Q_{n+1}^2 x^n$$

$$(xviii) \frac{36+16x-4x^2}{(1-5x-5x^2+x^3)} = \sum_{n=0}^{\infty} Q_{n+2}^2 x^n$$

$$(xix) \frac{8-88x-120x^2+8x^3}{(1-12x-30x^2+12x^3+x^4)} = \sum_{n=0}^{\infty} Q_n^3 x^n$$

$$(xx) \frac{1-4x-x^2}{(1-12x-30x^2+12x^3+x^4)} = \sum_{n=0}^{\infty} P_{n+1}^3 x^n$$

$$(xxi) \frac{8+120x-88x^2-8x^3}{(1-12x-30x^2+12x^3+x^4)} = \sum_{n=0}^{\infty} Q_{n+1}^3 x^n$$

$$(xxii) \frac{8 + 29x - 12x^2 - x^3}{(1 - 12x - 30x^2 + 12x^3 + x^4)} = \sum_{n=0}^{\infty} P_{n+2}^3 x^n$$

$$(xxiii) \frac{216 + 152x - 104x^2 - 8x^3}{(1 - 12x - 30x^2 + 12x^3 + x^4)} = \sum_{n=0}^{\infty} Q_{n+2}^3 x^n$$

$$(xxiv) \frac{10x}{(1 - 12x - 30x^2 + 12x^3 + x^4)} = \sum_{n=0}^{\infty} P_n P_{n+1} P_{n+2} x^n$$

$$(xxv) \frac{24 - 120x + 120x^2 + 8x^3}{(1 - 12x - 30x^2 + 12x^3 + x^4)} = \sum_{n=0}^{\infty} Q_n Q_{n+1} Q_{n+2} x^n$$

$$(xxvi) \frac{P_k x}{1 - Q_k x + (-1)^k x^2} = \sum_{n=0}^{\infty} P_{nk} x^n$$

$$(xxvii) \frac{P_r + (-1)^r P_{k-r} x}{1 - Q_k x + (-1)^k x^2} = \sum_{n=0}^{\infty} P_{nk+r} x^n$$

$$(xxviii) \frac{2 + 3Q_k x}{1 - Q_k x + (-1)^k x^2} = \sum_{n=0}^{\infty} Q_{nk} x^n$$

$$(xxvii) \frac{Q_r + (-1)^r Q_{k-r} x}{1 - Q_k x + (-1)^k x^2} = \sum_{n=0}^{\infty} Q_{nk+r} x^n$$

GENERATING FUNCTIONS FOR S_n :

Let $s_n = \sum_{i=1}^n P_i$ and $g(x) = \sum_{n=0}^{\infty} s_n x^n$; then

$$\begin{aligned} \sum_{n=0}^{\infty} s_n x^n &= \sum_{n=0}^{\infty} \frac{1}{2} (P_n + P_{n+1} - 1) x^n && \sum_{i=1}^n P_i = \frac{1}{2} (P_n + P_{n+1} - 1) \\ &= \frac{1}{2} \left[\sum_{n=0}^{\infty} P_n x^n + \sum_{n=0}^{\infty} P_{n+1} x^n - \sum_{n=0}^{\infty} x^n \right] && \text{[Since } \sum_{i=1}^n P_i = \frac{1}{2} (P_n + P_{n+1} - 1) \text{]} \\ &= \frac{1}{2} \left[\frac{x}{(1 - 2x - x^2)} + \frac{1}{(1 - 2x - x^2)} - \frac{1}{1 - x} \right] && \text{[Using (1), (3) and (5)]} \\ &= \frac{1}{2} \left[\frac{2x}{(1 - 3x + x^2 + x^3)} \right] \end{aligned}$$

Thus, $\sum_{n=0}^{\infty} s_n x^n = \frac{x}{(1 - 3x + x^2 + x^3)}$.

GENERATING FUNCTIONS FOR P_{m+n} and Q_{m+n} :

Using Binet formula, generating function for P_{m+n} can be derived as follows:

$$\begin{aligned} \sum_{n=0}^{\infty} P_{m+n} x^n &= \sum_{n=0}^{\infty} \left(\frac{\gamma^{m+n} - \delta^{m+n}}{\gamma - \delta} \right) x^n \\ &= \frac{1}{\gamma - \delta} \left[\gamma^m \sum_{n=0}^{\infty} \gamma^n x^n - \delta^m \sum_{n=0}^{\infty} \delta^n x^n \right] \\ &= \frac{1}{\gamma - \delta} \left[\frac{\gamma^m}{1 - \gamma x} - \frac{\delta^m}{1 - \delta x} \right] && \sum_{n=0}^{\infty} a^n x^n = \frac{1}{1 - ax} \text{ [Since]} \end{aligned}$$

$$\begin{aligned}
 &= \frac{1}{\gamma - \delta} \left[\frac{\gamma^m (1 - \delta x) - \delta^m (1 - \gamma x)}{(1 - \gamma x)(1 - \delta x)} \right] \\
 &= \frac{1}{\gamma - \delta} \left[\frac{(\gamma^m - \delta^m) - \gamma \delta x (\gamma^{m-1} - \delta^{m-1})}{1 - (\gamma + \delta)x + \gamma \delta x^2} \right] \\
 &= \frac{1}{\gamma - \delta} \left[\frac{(\gamma^m - \delta^m) + (\gamma^{m-1} - \delta^{m-1})x}{1 - (\gamma + \delta)x + \gamma \delta x^2} \right] \\
 &= \frac{P_m + P_{m-1}x}{1 - 2x - x^2} \\
 \text{Thus, } \sum_{n=0}^{\infty} P_{m+n} x^n &= \left(\frac{P_m + P_{m-1}x}{1 - 2x - x^2} \right) .
 \end{aligned}$$

Likewise, it can be shown that $\sum_{n=0}^{\infty} Q_{m+n} x^n = \left(\frac{Q_m + Q_{m-1}x}{1 - 2x - x^2} \right) .$

EXPONENTIAL GENERATING FUNCTIONS

Since $e^t = \sum_{n=0}^{\infty} \frac{t^n}{n!}$, it follows that $e^{\gamma x} = \sum_{n=0}^{\infty} \frac{\gamma^n x^n}{n!}$ and $e^{\delta x} = \sum_{n=0}^{\infty} \frac{\delta^n x^n}{n!}$

$$\therefore \frac{e^{\gamma x} - e^{\delta x}}{\gamma - \delta} = \sum_{n=0}^{\infty} \left(\frac{\gamma^n - \delta^n}{\gamma - \delta} \right) \frac{x^n}{n!} = \sum_{n=0}^{\infty} P_n \frac{x^n}{n!} \tag{8}$$

Thus, the exponential function $\frac{e^{\gamma x} - e^{\delta x}}{\gamma - \delta}$ generates the numbers $\frac{P_n}{n!}$.
Likewise, we can show that

$$e^{\gamma x} + e^{\delta x} = \sum_{n=0}^{\infty} Q_n \frac{x^n}{n!} ; \tag{9}$$

That is $(e^{\gamma x} + e^{\delta x})$ generates the numbers $\frac{Q_n}{n!}$.
More generally, we can show that

$$\frac{e^{\gamma^k x} - e^{\delta^k x}}{\gamma - \delta} = \sum_{n=0}^{\infty} \frac{P_{nk}}{n!} x^n \tag{10}$$

Likewise,

$$e^{\gamma^k x} + e^{\delta^k x} = \sum_{n=0}^{\infty} \frac{Q_{nk}}{n!} x^n \tag{11}$$

Using (8), we can write

$$\frac{e^{(1+\sqrt{2})x} - e^{(1-\sqrt{2})x}}{(1+\sqrt{2}) - (1-\sqrt{2})} = \sum_{n=0}^{\infty} P_n \frac{x^n}{n!}$$

Or $e^{(1+\sqrt{2})x} - e^{(1-\sqrt{2})x} = 2\sqrt{2} \sum_{n=0}^{\infty} P_n \frac{x^n}{n!}$

Or $e^x [e^{\sqrt{2}x} - e^{-\sqrt{2}x}] = 2\sqrt{2} \sum_{n=0}^{\infty} P_n \frac{x^n}{n!}$

Or $2e^x \sinh \sqrt{2}x = 2\sqrt{2} \sum_{n=0}^{\infty} P_n \frac{x^n}{n!}$

Thus,

$$e^x \sinh \sqrt{2}x = \sqrt{2} \sum_{n=0}^{\infty} P_n \frac{x^n}{n!}$$

Similarly,

$$2e^x \cosh \sqrt{2}x = \sum_{n=0}^{\infty} Q_n \frac{x^n}{n!}$$

IDENTITIES USING GENERATING FUNCTIONS

We have $\sum_{n=0}^{\infty} P_{n+1}x^n = \frac{1}{D}$, $\sum_{n=0}^{\infty} P_{n-1}x^n = \frac{1-2x}{D}$ and $\sum_{n=0}^{\infty} Q_n x^n = \frac{2(1-x)}{D}$ where $D = 1 - 2x - x^2$. Also,

$$\frac{2(1-x)}{D} = \frac{1}{D} + \frac{1-2x}{D}$$

It follows that $\sum_{n=0}^{\infty} \frac{2(1-x)}{D} = \sum_{n=0}^{\infty} \frac{1}{D} + \sum_{n=0}^{\infty} \frac{1-2x}{D}$

$$\Rightarrow \sum_{n=0}^{\infty} Q_n x^n = \sum_{n=0}^{\infty} P_{n+1}x^n + \sum_{n=0}^{\infty} P_{n-1}x^n$$

$$= \sum_{n=0}^{\infty} (P_{n+1} + P_{n-1})x^n$$

$$\therefore Q_n = P_{n+1} + P_{n-1}$$

Next we shall prove that $P_m Q_n + P_{m-1} Q_{n-1} = Q_{m+n-1}$.

$$\sum_{m=0}^{\infty} (P_m Q_n + P_{m-1} Q_{n-1})x^m = Q_n \sum_{m=0}^{\infty} P_m x^m + Q_{n-1} \sum_{m=0}^{\infty} P_{m-1} x^m$$

$$= Q_n \frac{x}{D} + Q_{n-1} \frac{1-2x}{D}$$

$$= \frac{Q_{n-1} + (Q_n - 2Q_{n-1})x}{D} = \frac{Q_{n-1} + Q_{n-2}x}{D}$$

$$= \sum_{m=0}^{\infty} Q_{m+n-1} x^m$$

$$\therefore P_m Q_n + P_{m-1} Q_{n-1} = Q_{m+n-1}$$

Similarly, we can prove other identities like

$$P_m P_n + P_{m-1} P_{n-1} = P_{m+n-1}, Q_m Q_n + Q_{m-1} Q_{n-1} = 8P_{m+n-1} \text{ etc.}$$

COMBINATORIAL IDENTITIES USING GENERATING FUNCTIONS

Let $A(t) = \sum_{n=0}^{\infty} a_n \frac{t^n}{n!}$ and $B(t) = \sum_{n=0}^{\infty} b_n \frac{t^n}{n!}$; then

$$A(t)B(t) = \sum_{n=0}^{\infty} \left[\sum_{k=0}^n \binom{n}{k} a_k b_{n-k} \right] \frac{t^n}{n!} \tag{12}$$

$$A(t)B(-t) = \sum_{n=0}^{\infty} \left[\sum_{k=0}^n (-1)^{n-k} \binom{n}{k} a_k b_{n-k} \right] \frac{t^n}{n!} \tag{13}$$

and $A(2t)B(t) = \sum_{n=0}^{\infty} \left[\sum_{k=0}^n 2^k \binom{n}{k} a_k b_{n-k} \right] \frac{t^n}{n!}$ (14)

In particular, $A(t) = \frac{e^{\gamma t} - e^{\delta t}}{\gamma - \delta}$ and $B(t) = e^t$; then

$$A(2t)B(t) = \left(\frac{e^{2\gamma t} - e^{2\delta t}}{\gamma - \delta} \right) e^t$$

$$\sum_{n=0}^{\infty} \left[\sum_{k=0}^n 2^k \binom{n}{k} a_k b_{n-k} \right] \frac{t^n}{n!} = \left(\frac{e^{2\gamma t} - e^{2\delta t}}{\gamma - \delta} \right) e^t$$

By (14)

$$\sum_{n=0}^{\infty} \left[\sum_{k=0}^n 2^k \binom{n}{k} P_k \right] \frac{t^n}{n!} = \left(\frac{e^{(1+2\gamma)t} - e^{(1+2\delta)t}}{\gamma - \delta} \right)$$

By (8)

$$= \left(\frac{e^{\gamma^2 t} - e^{\delta^2 t}}{\gamma - \delta} \right)$$

(Since $\gamma^2 - 2\gamma - 1 = 0$),

$$= \sum_{n=0}^{\infty} P_{2n} \frac{t^n}{n!}$$

By (10)

Thus,

$$\sum_{n=0}^{\infty} \left[\sum_{k=0}^n 2^k \binom{n}{k} P_k \right] \frac{t^n}{n!} = \sum_{n=0}^{\infty} P_{2n} \frac{t^n}{n!}$$

Equating the coefficients of $\frac{t^n}{n!}$ yields the combinatorial identity

$$\sum_{k=0}^n 2^k \binom{n}{k} P_k = P_{2n}$$

Now taking,

$A(t) = \frac{e^{\gamma t} - e^{\delta t}}{\gamma - \delta}$ and $B(t) = e^{-t}$;

$$A(t)B(2t) = \left(\frac{e^{\gamma t} - e^{\delta t}}{\gamma - \delta} \right) e^{-2t}$$

$$\sum_{n=0}^{\infty} \left[\sum_{k=0}^n (-2)^{n-k} \binom{n}{k} a_k b_{n-k} \right] \frac{t^n}{n!} = \left(\frac{e^{\gamma t} - e^{\delta t}}{\gamma - \delta} \right) e^{-2t}$$

$$\sum_{n=0}^{\infty} \left[\sum_{k=0}^n (-2)^{n-k} \binom{n}{k} P_k \right] \frac{t^n}{n!} = \left(\frac{e^{(-2+\gamma)t} - e^{(-2+\delta)t}}{\gamma - \delta} \right)$$

$$= \left(\frac{e^{-\delta t} - e^{-\gamma t}}{\gamma - \delta} \right)$$

(Since $\gamma + \delta = 2$),

$$= \sum_{n=0}^{\infty} (-1) P_n \frac{(-t)^n}{n!} = \sum_{n=0}^{\infty} (-1)^{n-1} P_n \frac{t^n}{n!}$$

Thus,

$$\sum_{n=0}^{\infty} \left[\sum_{k=0}^n (-2)^{n-k} \binom{n}{k} P_k \right] \frac{t^n}{n!} = \sum_{n=0}^{\infty} (-1)^{n-1} P_n \frac{t^n}{n!}$$

Equating the coefficients of $\frac{t^n}{n!}$ yields another combinatorial identity

$$\sum_{k=0}^n (-2)^{n-k} \binom{n}{k} P_k = (-1)^{n-1} P_n$$

Obviously, by selecting $A(t)$ and $B(t)$ as suitable exponential functions, we can apply this method to derive other Pell and Pell-Lucas combinatorial identities.

For example, choosing $A(t) = e^{\gamma t} + e^{\delta t}$ and $B(t) = e^t$, we get $\sum_{k=0}^n 2^k \binom{n}{k} Q_k = Q_{2n}$; and taking $A(t) = e^{\gamma t} + e^{\delta t}$ and $B(t) = e^{-t}$, we get $\sum_{k=0}^n (-2)^{n-k} \binom{n}{k} Q_k = (-1)^n Q_n$.

COMBINATORIAL IDENTITIES USING THE DIFFERENTIAL OPERATOR

Since $A(t) = \sum_{n=0}^{\infty} a_n \frac{t^n}{n!}$, it follows that $\frac{d^r}{dt^r} A(t) = \sum_{n=0}^{\infty} a_{n+r} \frac{t^n}{n!}$ (15)

In particular, taking $A(t) = \frac{e^{2\alpha t} - e^{2\beta t}}{\alpha - \beta}$ and $B(t) = e^t$; we get

$$A(t)B(t) = \left(\frac{e^{2\alpha t} - e^{2\beta t}}{\alpha - \beta} \right) e^t$$

$$A(t)B(t) = \sum_{n=0}^{\infty} \left[\sum_{k=0}^n 2^k \binom{n}{k} P_k \right] \frac{t^n}{n!}$$

$$\left(\because A(t)B(t) = \sum_{n=0}^{\infty} \left[\sum_{k=0}^n \binom{n}{k} a_k b_{n-k} \right] \frac{t^n}{n!} \right)$$

Using (15) we can write

$$B(t) \frac{d^r}{dt^r} A(t) = \sum_{n=0}^{\infty} \left[\sum_{k=0}^n 2^{k+r} \binom{n}{k} P_{k+r} \right] \frac{t^n}{n!}$$

Or

$$\sum_{n=0}^{\infty} \left[\sum_{k=0}^n 2^{k+r} \binom{n}{k} P_{k+r} \right] \frac{t^n}{n!} = B(t) \frac{d^r}{dt^r} \left(\frac{e^{2\alpha t} - e^{2\beta t}}{\alpha - \beta} \right)$$

$$= e^t \cdot \left[\frac{(2\alpha)^r e^{2\alpha t} - (2\beta)^r e^{2\beta t}}{\alpha - \beta} \right]$$

$$= \frac{(2\alpha)^r e^{(2\alpha+1)t} - (2\beta)^r e^{(2\beta+1)t}}{\alpha - \beta}$$

$$= 2^r \left(\frac{\alpha^r e^{\alpha t} - \beta^r e^{\beta t}}{\alpha - \beta} \right) \quad (\text{Since } \alpha^2 - 2\alpha - 1 = 0)$$

$$= 2^r \sum_{n=0}^{\infty} P_{2n+r} \frac{t^n}{n!}$$

Thus,

$$\sum_{n=0}^{\infty} \left[\sum_{k=0}^n 2^{k+r} \binom{n}{k} P_{k+r} \right] \frac{t^n}{n!} = 2^r \sum_{n=0}^{\infty} P_{2n+r} \frac{t^n}{n!}$$

Equating the coefficients of $\frac{t^n}{n!}$ yields the combinatorial identity

$$\sum_{k=0}^n 2^{k+r} \binom{n}{k} P_{k+r} = 2^r P_{2n+r}.$$

Or

$$\sum_{k=0}^n 2^k \binom{n}{k} P_{k+r} = P_{2n+r}.$$

HYBRID IDENTITIES

$$A(t) = \frac{e^{\gamma t} - e^{\delta t}}{\gamma - \delta} \text{ and } B(t) = e^{\gamma t} + e^{\delta t}; \text{ then}$$

Here we derive some hybrid identities involving both Pell and Pell-Lucas numbers. If we choose

$$A(t)B(t) = \left(\frac{e^{\gamma t} - e^{\delta t}}{\gamma - \delta} \right) (e^{\gamma t} + e^{\delta t})$$

Or
$$\sum_{n=0}^{\infty} \left[\sum_{k=0}^n \binom{n}{k} P_k Q_{n-k} \right] \frac{t^n}{n!} = \left(\frac{e^{2\gamma t} - e^{2\delta t}}{\gamma - \delta} \right)$$

[By (8) and (12)]

Or
$$\sum_{n=0}^{\infty} \left[\sum_{k=0}^n \binom{n}{k} P_k Q_{n-k} \right] \frac{t^n}{n!} = \sum_{n=0}^{\infty} P_n \frac{(2t)^n}{n!}$$

Or
$$\sum_{n=0}^{\infty} \left[\sum_{k=0}^n \binom{n}{k} P_k Q_{n-k} \right] \frac{t^n}{n!} = \sum_{n=0}^{\infty} 2^n P_n \frac{t^n}{n!}$$

This yields the combinatorial hybrid identity that

$$\sum_{k=0}^n \binom{n}{k} P_k Q_{n-k} = 2^n P_n \tag{16}$$

$$A(t) = \frac{e^{\gamma t} - e^{\delta t}}{\gamma - \delta} = B(t)$$

By choosing $t = 1$, we get

$$A(1)B(1) = \left(\frac{e^{\gamma} - e^{\delta}}{\gamma - \delta} \right) (e^{\gamma} + e^{\delta})$$

Or
$$\sum_{n=0}^{\infty} \left[\sum_{k=0}^n \binom{n}{k} P_k P_{n-k} \right] \frac{1^n}{n!} = \left(\frac{e^{2\gamma} + e^{2\delta} - 2e^{(\gamma+\delta)}}{(\gamma - \delta)^2} \right)$$

$$\begin{aligned} &= \frac{1}{8} [(e^{2\gamma} + e^{2\delta}) - 2e^{2t}] \\ &= \sum_{n=0}^{\infty} \frac{1}{8} [2^n Q_n - 2 \cdot 2^n] \frac{1^n}{n!} \\ &= \sum_{n=0}^{\infty} 2^{n-3} (Q_n - 2) \frac{1^n}{n!} \end{aligned}$$

Thus,
$$\sum_{k=0}^n \binom{n}{k} P_k P_{n-k} = 2^{n-3} (Q_n - 2) \tag{17}$$

Similarly,
$$\sum_{k=0}^n \binom{n}{k} Q_k Q_{n-k} = 2^n (Q_n + 2) \tag{18}$$

GENERALIZED HYBRID IDENTITIES

Identities (16) through (18) can also be generalized as follows:

$$\begin{aligned} \sum_{k=0}^n \binom{n}{k} P_{mk} Q_{mn-mk} &= 2^n P_{mn} \\ \sum_{k=0}^n \binom{n}{k} P_{mk} P_{mn-mk} &= \frac{2^n Q_{mn} - 2Q_m^n}{8} \\ \sum_{k=0}^n \binom{n}{k} Q_{mk} Q_{mn-mk} &= 2^n Q_{mn} + 2Q_m^n \end{aligned}$$

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