A STUDY ON ASSESSING THE IMPACT OF LEARNING ORGANIZATION ON INNOVATION PERFORMANCE AT TETRA POWER Pvt. Ltd, COIMBATORE

by

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Synopsis

The study on assessing the impact of learning organization on Innovation performance is conducted for two hundred and thirty employees of this company. Since the research were conducted to study the impact of learning organization on innovation performance. The objective of this study is to develop the on – going learning strategy and to find the relationship between the learning organization and innovation performance of employees in the company. The dimensions of learning organization and innovation performance will be rated with the predefined scaling factors. A questionnaire will be designed and will be circulated among the employees who are considered as the respondent. The feedback obtained from the respondent through the forms will be assessed. The assessed ratings will be considered to improve the learning and innovation performance in the organization. A reality based suggestions will be considered to the company and the respondents to take this valuable suggestions as their guidelines and make them improve by themselves. Though this study , suggests the outcome of both the employee and the company for learning and innovation performance. It is in the hands of the respondents and the company to take it as a challenge and accordingly for the respondent personnel growth, career development and for the development of the company

CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION TO THE STUDY

During the last twenty years the working environment of all kinds of organizations has been changing because of the external factors like globalization and rapid development of information technologies. Whether the employees or managers like it or not, they all will have to accommodate to this new environment. This change would probably not be as easy as it seems to be, so managers will have to implement different strategies in order to accommodate themselves and the entire organization to constantly changing world of today. In other words, managers will have to formulate new strategies for the learning organization that are different and distinct from the preceding ones.

In addition to specific changes in the roles of managers, employees in turn will also have to implement various techniques. This way, learning organization is identified by both managers and employees working together to improve the overall organization's performance by spotting, studying, and correcting errors, and learning from those errors.

Sandra Kerka has suggested in her book The Learning Organization: Myths and Realities that any learning organization possesses the following characteristics. In other words learning organizations:

- use learning to teach their goals
- embrace creative tension as a source of energy and renewal
- Provide continuous learning opportunities.
- Link individual performance with overall organization's performance.

- Foster inquiry and dialogue, making it safe for people to share openly and take risks.
- Are continuously aware of and interact with their environment.

Generally, a learning organization can be recognized by specific relationships between organization members on a horizontal level. They communicate easily, they are sensitive to each other's thoughts and ideas, they communicate more often, they are more honest, they are creative in their thoughts, and they literally learn from one another as well as from the other outside circumstances. In learning organization, workers are encouraged to take risks, which results in more opportunities for the organization.

External factors

Unfortunately, prosperous organizations are not forever. Forces and trends external to the learning organization and internal conditions have played a substantial role in transformation of the aspect of management. Here are some examples of what external forces have contributed to a learning organization.

- Rapid industrialization of many developing countries and sharpening of global competition.
- The development of technologies that make current strategies obsolete.
- The impact of larger financial markets that facilitated major transfers of corporate control.
- Growing utilization of different organizational forms including strategic alliances.
- Development of progressively higher standards for winning and keeping customers.

Therefore, in order to stay competitive on the market, organizations have to learn to deal professionally with these external changes. In addition, Internal developments can also make a huge impact on organization's performance. Here is a more detailed look into measures:

Internal trends

The decision making process, put forward by Herbert A. Simon, explored the relationship between an organization and people decision making. In it he suggest that,

- People make decisions from incomplete information about possibilities and their consequences.
- People make decisions because they can explore only some and not all decision alternatives.
- People make decisions because they cannot always attach accurate results to outcomes.

Therefore, they must opt for "good enough" relationships rather than a perfect decision. There are some efficient systems for reducing uncertainty; the more uncertainty the greater the need for information processing, and the more this is the case the more the information systems shape the organization.

Communication

Inside the learning organization information must hurtle throughout easily, and the flow must not be somehow prevented or halted. The idea of free and sincere dialogue is essential within the learning organization. As stated earlier in the paper, all kinds of information flows, upward, downward, and horizontal should be encouraged. However the stress must be put on the horizontal flow of information within the organization because it is the very level at which employees form small groups and teams. Inquiries and responses outside and especially inside these formations should be taken for granted, and candor must be appreciated and sought. The perfect model in such case would be to acquire complete consensus with other team members this way enabling all the team to view the imminent problem in the same way. Of course

such relationship require constant and consistent work, they are achieved through hard work on oneself, his or her beliefs, and moral principles.

- Guidelines to develop a learning-oriented approach.
- Accept errors and uncertainty in a changing environment.
- Encourage alternative ideas.
- Avoid imposing action plans, don't give commands, and allow solutions to develop.
- Create structures to help implement the above principles.

Basically, Learning to Learn is concerned with improving the ability to learn. It is truly essential as well as significantly important to note that a Learning Organization is not an Adapting Organization. Learning and adapting are two totally different methods to improve organization's performance, where the learning method is considered more effective. As Donald Schon stated, "We must, in other words, become adept at learning. We must become able not only to transform our institutions, in response to changing situations and requirements. We must invent and develop institutions which are 'learning systems', that is to say, systems capable of bringing about their own continuing transformation".

There are several setbacks that interfere development of an organization. The conditions that halt transformation of a regular organization into a learning one are recognized by two major categories: individual setbacks and organizational setbacks. Some of the individual setbacks are mental laziness, felling of being too important and too busy, forgetting and ignoring techniques that were effective in the past, uncertainty and anxiety during the learning process, subconscious presupposition of knowing everything necessary, unwillingness to overturn past beliefs and opinion and some more.

Organizational setbacks are more sophisticated and require more a thorough deliberation when dealing with overcoming them. Furthermore, the ultimate number of organizational setbacks is more than twice as great as that of individual setbacks.

These comprise scarce information transfer, lack of new up-to-date merchandise, scarce recognition for developing capabilities, inability to encourage new policies, punishing errors in lieu of treating them as a necessity of a learning process, scarce training resources and time, took a self-assured top-management attitude, egoistic approach and lack of desire to share information, discouraged dialogues and sincerity,lack of sympathy and trust, eminent bureaucracy, and inability to honur culture.

The knowledge is getting more global every day and that dynamic structure of knowledge is forcing people to be open to change and development. The exact and simple way of acquiring knowledge is 'learning'. Learning is very important both for individuals and organizations. The importance of learning depends on a simple reality.

All the knowledge, abilities, attitudes and reality. All the knowledge, abilities, attitudes and how to behave, work and get knowledge by direct or indirect ways. Generally, learning is identified with school but in fact it begins with born and continues during whole life. A human gets only a small proportion of his or her knowledge at school; the biggest portion comes from daily life experiences. Learning is a basic feature of living organisms. Every living being has to adapt to environment in order to survive and has to learn continuously to realize such an adaptation. Traditionally, learning might be defined as a process in which individuals acquire new knowledge and intuitions that result in a change of the behaviours and actions.

Learning could take place in individuals, teams, the organization and even the communities with which the organization interact. To most researchers, organizational learning takes place with the help of individual learning. These researchers argue that the individual is the only actual entity of learning and in order for a team to learn, individual learning must come true and similarly, in order for an organization consisting of teams to learn, the team learning must come true. In today's world work and management change rapidly, so only a person is not enough to think about the organization. To obtain and sustain competitive advantage in this new world, companies have to evolve into a higher form of learning capability and transform to a

learning organization. Only if they could manage that transformation, they would be able to live in the next decades.

The enormous economic, social and technological changes of increasing intensity have changed the environment of the business world. The large organizations of the past cannot breathe and begin to vanish in this new atmosphere of rapid changes and intense competitions. The motto fit to survive' has changed to 'fit to learn to survive. In the next millennium the large organizations that can transform themselves into more intelligent, profitable and capable of learning will survive. This new kind of organization structure will contain greater knowledge, flexibility, speed, power and learning ability and will be named as learning organization. A learning organization draws a lesson from every experiment and renewing itself continuously, it can adapt to changing environmental conditions. This new period is a transformation era of rapid technological advances, social and political changes and harsh international competition. When the world is thought to be a big system, any kind of change occurring in a sub-system will influence all of the other sub-systems in a very short time. Because of that reality we experience economic, political, socio-cultural or managerial reconstructions every day. In this atmosphere it seems impossible for organizations to preserve their outdated structures and inevitable to transform into a more flexible and adaptive form. Therefore, learning organization understanding must become widespread and efforts of transformation to a learning organization must be augmented.

Learning and implementing what is learned are key prerequisites for most successful organizations. However, the learning and implementation must be integrated with organizational commitment and organizational effectiveness that contribute to business success. A learning organization is an organization skilled at modifying its behaviour to reflect new knowledge, insights, commitment, and effectiveness. Therefore, the effectiveness of organizations and employee commitment necessarily must involve the concept of the learning organization. Organizations often expect that learning and knowledge creation will take place continuously for individuals and that they will share what they know in ways that

promote learning in groups throughout the organization. The learning organizations are particularly significant in today's workplace where employees may frequently change jobs or hoard what they know because they believe that sharing knowledge could be detrimental to their own success.

With the economy being as it is, it would be fair to say that it has gotten to be very complex for a great amount of reasons such as being multicultural, competition and just the ever changing. Organizations of today no matter the business have trouble striving, succeeding because of their inability to adapt to the changes that is happening around them and thus is causing a lot of businesses to fail considerably. Lack of a good business relationship with customers is also a huge problem but could be easily rectified if they take the take to make the appropriate changes needed make their business successful. Characteristics of the ideal learning organization is one that proactively creates, acquires, and transfers knowledge and that changes its behavior on the basis of new knowledge and insights. Learning Organizations strive to reduce the barriers because they are all about promoting new ideas and information and this is done by hiring new people that have new ideas to bring to the table and also because the different mixer of cultures sometimes makes it more interesting and when it comes to learning organization culture it is basically about understanding and improving what is already there and doing continuous testing and challenging the way. Organizations strive to reduce structural processes and interpersonal barriers when it comes to sharing information and ideas among their members. Because organizations encourage change it is also very important that their employees are encouraged also to change their behaviour as well especially towards each other and their customers.
Innovativeness is one of the fundamental instruments of growth strategies to enter new markets, to increase the existing market share and to provide the company with a competitive edge. Motivated by the increasing competition in global markets, companies have started to grasp the importance of innovation, since swiftly changing technologies and severe global competition rapidly erode the value added of existing products and services. Thus, innovations constitute an indispensable component of the corporate strategies for several reasons such as to apply more productive manufacturing processes, to perform better in the market, to seek positive reputation

in customers' perception and as a result to gain sustainable competitive advantage. Particularly over the last two decades, innovativeness has turned into an attractive area of study for those researchers who tried to define, categorize and investigate its performance impacts, especially due to its practical relevance. Innovations provide firms a strategic orientation to overcome the problems they encounter while striving to achieve sustainable competitive advantage.

Innovation as a term is not only related to products and processes, but is also related to marketing and organization. Schumpeter (1934) described different types of innovation: new products, new methods of production, new sources of supply, the exploitation of new markets, and new ways to organize business. Drucker (1985) defined innovation as the process of equipping in new, improved capabilities or increased utility.

Innovation – the ideation, development, and commercialization of substantially new products, services or businesses –facilitates the development of new sources of competitive advantage. While there is general consensus that innovation depends heavily on intangibles such as creativity or risk-taking behaviour, only recently have companies moved from a strategy of hope to a more tightly managed innovation approach. In the wake of this development, management control within innovation and applied R&D departments is on the rise. As a consequence, new performance measurement approaches that acknowledge the unique nature of innovation need to be developed: In these particularly uncertain and novel contexts, financial and non-financial outputs only occur with a substantial delay, and there is a general need for more granular proxy measures to assess and steer innovation performance. In addition, the overall idea of innovation performance measurement bears its very own pitfalls: A traditional measure-and-control approach employing top-down KPI assignments for organizational actors can easily cripple innovation staff's creativity and motivation or lead to sub-optimization and an overemphasis on short-term goals. Any type of organization can be a learning organization if it possesses certain characteristics: provide continuous learning opportunities, use learning to reach its goals, link individual performance with organizational performance, foster inquiry and

dialogue, embrace creative tension as a source of energy and renewal, and be continuously aware of and interact with its environment. Despite theoretical support and some real-life examples, some critics claim the learning organization is a myth, not a reality. Some cite a lack of critical analysis of the theoretical framework of the LO.

In this study the product and process innovation are introduced. Product and process innovations are closely related to the concept of technological developments. A product innovation is the introduction of a good or service that is new or significantly improved regarding its characteristics or intended uses; including significant improvements in technical specifications, components and materials, incorporated Software, user friendliness or other functional characteristics. Product innovations can utilize new knowledge or technologies, or can be based on new uses or combinations of existing knowledge or technologies. The term product covers both goods and services. Product innovation is a difficult process driven by advancing technologies, changing customer needs, shortening product life cycles, and increasing global competition. For success, it must involve strong interaction within the firm and further between the firm and its customers and suppliers. A process innovation is the implementation of a new or significantly improved production or delivery method. This includes significant changes in techniques, equipment and/or software. Process innovations can be intended to decrease unit costs of production or delivery, to increase quality, or to produce or deliver new or significantly improved products. Fagerberg et al. (2004) stressed that while the introduction of new products is commonly assumed to have a clear, positive effect on the growth of income and employment, process innovation, due to its cost-cutting nature, can have a hazier Effect

They suggest that few studies support the relationship between individual and organizational learning. Another critic sees the primary purpose of most organizations as the production of goods and services, not the acquisition of knowledge/learning. Schools that have been evaluated along Senge's five disciplines have also been found lacking. Barriers that prevent the LO from becoming a reality include the following:

lack of effective leaders, the inability to recognize and change existing mental models, learned helplessness, tunnel vision, truncated learning, individualism, and a culture of disrespect and fear. The LO may best thought of as a journey, not a destination; a philosophy, not a program.

In today's tremendously competitive business world, where rapid innovations and swiftly developing technologies are regular occurrences and where nearly all spheres and infrastructures undergo continuous change, organizations also have to alter their inner structures in order to stay on the market and offer competitive goods or services. Managers of organizations should be open to and ready for new strategies and should also understand that risks and innovation are inevitable. They should also lead the entire organization in a corresponding manner so that subordinates change their long-term views, different ideas and beliefs. In other words, it is managers' task to make an organization become a learning organization. And only a learning organization can easily and swiftly react in right way to an unexpected problem; only a learning organization can treat the errors as opportunities to gain more knowledge; only members of a learning organization can share problems openly and trust each other fully, respect each other's ideas and suggestions and honor each other's culture and personal beliefs. Ultimately, the future of any company should be considered along with considering the transformation the organization into a learning organization.

1.2 INDUSTRY PROFILE

Renewable energy in India is a sector that is still underdeveloped. India was the first country in the world to set up a ministry of non conventional energy resources, in early 1980s. However its success has been very spotty. In recent years India has been lagging behind other nations in the use of renewable energy (RE). India's cumulative Grid interactive or Grid Tied Renewable Energy Capacity (excluding Large Hydro) has reached 26.9GW, of Which 68.9% comes from Wind, while Solar PV contributed nearly 4.59% of the Renewable Energy Installed Capacity in India[1] of total

generation capacity of India. Renewable energy in India comes under the purview of the Ministry of new and renewable energy.

India is densely populated and has high solar isolation, an ideal combination for using solar power in India. Much of the country does not have an electrical grid, so one of the first applications of solar power has been for water pumping, to begin replacing India's four to five million diesel powered water pumps, each consuming about 3.5 kilowatts, and off-grid lighting. Some large projects have been proposed, and a 35,000 km² area of the Thar Desert has been set aside for solar power projects, sufficient to generate 700 to 2,100 gig watts. The Indian Solar Loan Programme, supported by the United Nations Environment Programme has won the prestigious Energy Globe World award for Sustainability for helping to establish a consumer financing program for solar home power systems. Over the span of three years more than 16,000 solar home systems have been financed through 2,000 bank branches, particularly in rural areas of South India where the electricity grid does not yet extend.

Launched in 2003, the Indian Solar Loan Programme was a four-year partnership between UNEP, the UNEP Risoe Centre, and two of India's largest banks, the Canara Bank and Syndicate Bank. Announced in November 2009, the Government of India proposed to launch its Jawaharlal Nehru National Solar Mission under the National Action Plan on Climate Change with plans to generate 1,000 MW of power by 2013 and up to 20,000 MW grid-based solar power, 2,000 MW of off-grid solar power and cover 20 million sq metres with collectors by the end of the final phase of the mission in 2020.

The key drivers for renewable energy are the following:

- The demand-supply gap, especially as population increases
- A large untapped potential
- Concern for the environment
- The need to strengthen India’s energy security
- Pressure on high-emission industry sectors from their shareholders
- A viable solution for rural electrification

The cornerstone of the solar policy announced by the Government of Tamil Nadu on October 20 is that it has created a demand for solar power by imposing obligations on an industry that is already suffering from crippling power cuts and a recent hike in tariffs. More tariff hikes are ahead, as the State’s electricity generation and distribution utility, Tangedco, needs to clear out losses of around Rs 50,000 crore. And now, the industry (as well as colleges, residential schools and buildings with built-up area of 20,000 sq. m or more) will have to buy 3 per cent of their electricity consumption from solar power till December 2013 and 6 per cent from January 2014. Therefore, a demand is created, as one industrialist put it, by “arm-twisting the industry.” What of generation? The State’s solar policy has various things to offer to utility-scale power projects and the rooftop ones. If you are a utility-scale (that is, large) project developer, you could sell your power to either Tangedco and be paid a ‘solar’ tariff or to consumers directly. That the financial situation of Tangedco is terrible is common knowledge. It has not paid its dues to various generators, especially wind-power producers, for well over a year. Given this situation, it is hard to believe that any bank will come forward to fund a solar project that has a power-purchase agreement with Tangedco. The developer then will have to sell it directly to consumers. Here is where the Tamil Nadu policy pales in comparison with the recently announced policy of Andhra Pradesh. AP exempts a developer from wheeling and transmission charges and cross-subsidy charges and electricity duty. Tamil Nadu does not. The least the State could have done is to have followed the AP example.

In April, the State’s regulatory commission allowed the utility to hike the long-term open-access transmission charges from Rs 2,781 a MW a day to Rs 6,483. The short-term open-access charges were raised from Rs 28.96 a unit to Rs 270.11 — nearly 10 times. And then, there are cross-subsidy charges. Therefore, it wouldn’t make sense for solar developers to sell power directly to consumers on the ‘open access.’ That leaves the developer with the only other choice: group captive. Form a special purpose vehicle with your customers as your shareholders, and sell power to them. Conditions apply, though. This is what is most likely to happen in Tamil Nadu.

Now, here is where the State’s policy distinguishes itself positively from AP’s. The AP policy relies heavily on the renewable certificate mechanism. The State’s does

too, but in Tamil Nadu, you can sell power at any tariff to a captive customer and yet get trade able renewable energy certificates (RECs). By relying less on RECs, the State has reduced risk in the projects. Consumers, for sure, will have to pay more, but presumably they will be happy to do so, because they at least get power to run their plants. Tamil Nadu could have exempted developers from wheeling and transmission charges, and cross-subsidy charges and electricity duty, as AP did. But the AP model conflicts with the spirit of the REC mechanism, which is, to be eligible for RECs the generator shall not have availed itself of any other benefit. This is a legal question mark that hangs on the AP policy, and the State has gotten rid of it.

Coming to rooftop projects, the State policy promises quite attractive generation-based incentives (GBI) — Rs 2 in the first two years, Re 1 in the next two and 50 paise in the following two — for households. Here again, the big issue is payment security. Given Tangedco’s track record in payments, banks will be hesitant to fund the projects. Otherwise, the Government promises to set an example by putting up solar rooftops on all State-owned buildings. The policy document also contains statements about encouraging solar module and cell manufacture. The discussion is academic. Given the global glut situation and the low prices and with the prospect of prices going down further, whether anyone will be willing to invest in manufacturing in India is a moot point.

There are two things that the Government of Tamil Nadu can do in order to make sure that the policy works. The first is to earmark some funds from its Budget to support solar energy. Rajasthan has done this. This will ring-fence solar expenses from the rest of Tangedco’s problems and give tremendous confidence to lenders. If necessary, the Government could raise tariffs by, say, 2 paise, to defray the costs. The second is to make land available. Land is a big headache for solar projects, ask any developer. If the Tamil Nadu Government can make available land for solar parks, the State is sure to win projects. Finally, to lead the rooftop revolution in India, given the net metering facility is in place, the Government can bring in a system whereby the GBI payments due to the customers are deducted from the customers’ monthly bills. This will obviate the need for them to run after Tangedco for their dues.

The State government is committed to promoting renewable energy, especially solar energy, in a big way in the tamilnadu State. Given the rapid depletion of fossil fuels for generating thermal power and the limitations of hydro power, it is imperative that the State and the country tapped the vast potential for renewable energy sources. The Tamil Nadu government has already taken a series of measures to raise awareness and promote renewable energy and wanted to make it a mass movement, by the Tamil Nadu Energy Development Agency (TEDA) and Rotary International. The State government, the Minister pointed out, has already come out with a Vision 2023 programme which aims to bring in huge investments in infrastructure, especially the power sector.

The government has also brought out a Solar Energy Policy and planned to generate 3000 MW of solar power over the next three years. Tenders have already been called for generating 1000 MW solar power and the private investors have shown keen interest in the project, he said. Referring to the current power shortage of 4000 MW in the State, Mr.Viswanathan said power generation was gradually increasing, thanks to the measures initiated by the Chief Minister. As new power projects are commissioned, the shortage would be bridged soon. Minister for School Education, Law, Youth Welfare and Sports, appealed to the students to raise awareness on renewable sources. Sudeep Jain, Chairman and Managing Director, TEDA, said 30 per cent of the country’s renewable energy installations and 40 per cent of wind energy installations were in Tamil Nadu. Expressing confidence that the target of generating 3000 MW of solar energy by 2015 would be achieved, he said the State government was extending various incentives for promoting solar energy. For the first time in the country, domestic solar installations are to be given generation based incentive.

1.3 ORGANIZATION PROFILE

Tetra Power is a social responsible company to promote non conventional / renewable energy such as Solar Power, Wind Power and combination of both calling it as Hybrid Power globally. The Solar Power Systems, Small Wind Power Systems and

Hybrid Power generators produce Eco-Friendly green power which is cost effective and the best alternate power solution for domestic and commercial applications. Tetra Power, a young and a growing company one among solar & small wind power generation systems manufacturer in the world is founded in India by a team of qualified and experienced experts with 20 to 30 years of expertise in Wind, Solar and Hybrid power.

1.2.1 VISION

Tetra Power, a proud Manufacturer and promoter of Solar, wind and hybrid power generators for domestic, commercial and public utility applications, with a vision to promote eco-friendly, clean and green energy for the next generation society.

1.2.2 PRODUCTS

Tetra Power manufactures Solar Power generators, Wind Power Generator, Blades, Control Systems, Charge Controllers, and Inverters and associated power generation systems. The expertise engineering team could provide various wind energy solutions for different customers.

The products manufactured and supplied by Tetra Power

- Solar Power Generators from 50W up to MW power plants
- Horizontal Axis Wind Generators and Vertical Axis Wind Generators from 200w to 50kw for domestic and industrial power usage
- Hybrid Power Systems from 500W to 100KW
- Inverters and Charge Controllers are also manufactured in house at Tetra Power facility. The capacity of Charge controllers vary from 10A to 150A for smaller range applications. 150A and above charge controllers are manufactured for solar farms and solar power plants. The capacity of inverters varies from 500W and above based on the size of the power project the company under take.
- Tetra Power also manufactures Lead Acid and GEL batteries with the following ratings at various out sourced facilities

Lead Acid Batteries 100AH/12VDC, 150AH/12VDC

Gel Batteries 400AH/24VDC, 600AH/24DC

The above products can be utilized for Off-Grid / Standalone applications, On-Grid/Grid Tie applications, Captivity Plant and Larger Power Plants

Some of the other highlights of the Renewable Energy Industry,

Renewable energy is a form of energy that is produced from natural resources like wind, geo-thermal heat, sunlight, and tides. Renewable energy sources currently contribute to approximately 18% of total global energy consumption. Renewable energy generating projects can be principal sources of power or act as supplementary power generating units. The alternative energy source is suitable for rural areas where transmission and distribution of energy can be expensive and even difficult. Renewable energy is particularly suitable for farmers and small business persons who require electrical power at certain predetermined intervals.

During the five-years from the end of 2004 through 2009, worldwide renewable energy capacity grew at rates of 10–60 percent annually for many technologies. In 2011, UN under-secretary general Achim steiner said: "The continuing growth in this core segment of the green economy is not happening by chance. The combination of government target-setting, policy support and stimulus funds is underpinning the renewable industry's rise and bringing the much needed transformation of our global energy system within reach." He added: "Renewable energies are expanding both in terms of investment, projects and geographical spread. In doing so, they are making an increasing contribution to combating climate change, countering energy poverty and energy insecurity".

- Wave power systems generate electrical energy from ocean waves.
- Renewable capacity now comprises about a quarter of total global power-generating capacity and supplies close to 20% of global electricity, with most of this provided by hydropower.

- Developing countries (collectively) have more than half of global renewable energy power.
- Solar PV capacity was added in more than 100 countries.
- The top five countries for non-hydro renewable power capacity were the United States, China, Germany, Spain, and India.
- The EU exceeded all its 2010 targets for wind, solar PV, concentrating solar thermal power, and heating/heat pumps. Countries including Finland, Germany, Spain, and Taiwan raised their targets, and South Africa, Guatemala, and India, among others, introduced new ones.
- Developing countries, which now represent more than half of all countries with policy targets and half of all countries with renewable support policies, are playing an increasingly important role in advancing renewable energy.

Indian Renewable Energy Industry is Exploding. The fast growing renewable energy sector in India presents lucrative business opportunities for foreign, international companies to enter the Indian renewable energy market. India is the most developed renewable energy market in South Asia, with annual revenue of about $185 billion. India is the third most attractive country to invest in renewable energy. The expansion of the overall energy demand-supply gap is due to the increase in the population's standard of living. The demand-supply gap in power is currently at 10.3% and is one of the key drivers of renewable energy. The utilization of renewable energy sources is still relatively low in India, thus presenting excellent business potential. The Indian Government expects the renewable energy sector to grow to $19 billion from 2008 to 2012, with renewable making up 20% of the 70,000 MW of total additional energy planned from 2008-2012. India has been attracting over $3 billion every year in renewable sector. India is emerging as one of the largest potential sources of Certified Emission Reduction (CER) and Renewable Energy Certificates (REC).

In the early 1980s, the Indian government established the Ministry of New and Renewable Energy (MNRE) to encourage diversification of the country's energy supply and satisfy the increasing energy demand of a rapidly growing economy. In March 2007 the Indian Government announced a semiconductor policy under its Special Incentive Package Scheme (SIPS). According to this policy, the government or its agencies will provide 20 percent of the capital expenditure during the first 10 years for semiconductor industries, including manufacturing activities related to solar PV technology located in Special Economic Zones (SEZ), and 25 percent for industries not located in an SEZ.

Some of the other key incentives provided by the government of India for the renewable energy industry are: Feed-in-tariffs, Up to 80 percent accelerated depreciation for renewable energy investments, Relief in customs duty, excise duty and sales tax, Exemption from Central Sales Tax, and customs duty concessions on the import of material, components and equipment used in renewable energy projects Soft loans, Government policies covering wheeling, banking, buy-back, and third-party sale of power, Soft loans, Generation-based incentives for solar and wind power projects. There are no limits to FDI in the RE sector. Foreign companies can hold 100% ownership. The government allows 100% foreign direct investment (FDI) in the renewable energy sector and has put in place conducive policies to attract foreign companies in the sector. With all the above attractive characteristics and potential,India presents a significant market opportunity for renewable energy firms worldwide.

1.4 STATEMENT OF THE PROBLEM

The aim of this study is to assess the impact of learning organization on innovation performance. The existing systems in the learning organization or innovation performance in the organization may or may not provide for effective learning among employees in the organization. The proposed study tries to assess the learning organization and innovation performance in the organization. As the study progressed certain new practices could also introduced and the same were suggested.

1.5 SCOPE OF THE STUDY

The scope of this study is to develop a model of learning organizations among innovation performance among employees in the organization. This study expects learning organization practices to lead to better organizational commitment and effectiveness in the renewable energy industries. The study and its results can be extended to other small medium scale industries or to other new ventures or aviation industry or banking industry. The study can further extended to find the organization financial performance based on innovation performance in the organization, could also find the organization growth based on the learning organization on innovation performance.

1.6 Need for the study

Since renewable energy sector is in the primitive stage, India has emerged as the fourth most attractive place globally in terms of its market potential for renewable energy. India was ranked fourth on the renewable attractiveness index, while it was placed in the second position on the solar index and third on the wind index. The renewable energy sector has grown at an annual rate of 23% to about 25,000 MW in March 2012. The renewable energy supports the government's objectives of 'inclusive growth' and is part of solutions to meet nation's energy needs. The Indian government allows 100 percent foreign direct investment (FDI) in the renewable energy sector and has put in place favourable policies to attract foreign companies into the sector. Tamil Nadu is committed to leading the country by generating 3000 MW of Solar Power by 2015 through a policy conducive to promoting solar energy in the State.

The industry looks for its growth in the coming year, for which learning organization is a critical aspect. The possibilities of innovation and creativity with respect to products and services are tremendous in this sector.

These aspects call for an in depth understanding of learning organization and innovation performance in the energy sector and this project caters to this requirements.

CHAPTER 2

REVIEW OF LITERATURE

François THERIN (2010) explored the influence of processes of learning in organization on innovation performance in high-tech small firms. Hypotheses regarding the link between learning organization and innovation were tested. An original construct, based on 6 dimensions, is derived to evaluate the degree of learning in firms. The validities (reliability, unidimensionality and convergent validity) of the construct were assessed using confirmatory factor analysis. Then, the influence on innovation was tested through structural equation modelling (SEM) on a database of 110 US high-tech small firms from different industries. Specifically, influence on product and process innovations and financial performance are tested. The first results show that the presence of learning organization orientation and learning organization processes is related to innovativeness in our sample of high – tech Small firms. The results were moderated by the degree of maturity of the industries and the strategic orientation of the CEOs. The conclusive part gave ways to ameliorate the learning organization processes and thus enhancing the innovative performance.

John Hagedoorn, Myriam Cloodt(2002) did the study on the innovative performance of a large international sample of nearly 1200 companies in four high-tech industries, using a variety of indicators. These indicators range from R&D inputs, patent counts and patent citations to new product announcements. The study establishes that a composite construct based on these four indicators clearly catches a latent variable 'innovative performance'. However, our findings also suggest that the statistical overlap between these indicators is that strong that future research might also consider using any of these indicators to measure the innovative performance of companies in high-tech industries.

Chien-Chi Tseng(2010) explored the effects of learning organization practices on organizational commitment and effectiveness in small and medium-sized enterprises (SMEs). The study used a quantitative research design. A framework for three hypotheses were explored: 1) Learning organization practices have a positive effect on perceived organizational commitment; 2) Learning organization practices have a positive effect on perceived organizational effectiveness; and 3) Organizational commitment has a positive relationship with organizational effectiveness. Three measurements were used to form an integrated 58 item instrument. The research used a self-administered computer-based Internet survey to collect the research data. The data were collected from a sample of 300 SMEs including 152 outstanding awarded SMEs (AOSMEs) and 148 incubating start-up SMEs (ISSMEs). The results suggested that learning organization practices can viewed as an important antecedent factor for organizational commitment, as well as an antecedent factor for organizational effectiveness. The findings not only provided a new direction for organizational research on key variables, but also generated an important implication for organizational practice: Strengthening learning organization practices is a wise way to create organizational effectiveness; strong learning organization practices were good to develop the organizational commitment; and the well developed organizational commitment were an advantage to foster organizational effectiveness.

Argyris (1964) discussed the idea of learning in individuals and organizations. His innovative thinking around notions such as the learning society, double-loop learning, and reflection-in-action has become part of the language of education (Smith, 2001). In the early 1990's, Senge began to explore the art and practice of the learning organization and popularized organizational learning with his book, *The Fifth Discipline*, that describes five characteristics of learning organizations: systems thinking, personal mastery, mental models, building shared vision, and team learning (Senge,1990a).

Tseng and McLean (2008) provided a conceptual framework to analyze the relationship between organizational learning and the learning organization. They found that there is a need for a greater comprehension of organizational learning that, in turn, will contribute to a better theoretical implementation of becoming a learning organization. Therefore, organizational learning is the activity and the process by which organizations eventually reach the ideal of a learning organization.

H. Nejat Basim, Harun Sesen and Haluk Korkmazyurek(2007) did a study on Validity and Reliability Study of the Dimensions of the Learning Organization Questionnaire. In this study, a sample that could represent the private sector companies has been used. The sample were selected from 500 Firms The translation method was a five-step model including forward translation, assessment of forward translation, backward translation, assessment of backward translation and local meeting with professionals. To test the construct validity of translated instrument, a factor analysis was performed and to examine the reliability of the measure Cronbach's alpha coefficients were calculated. The results showed that DLOQ was a valid instrument to measure the learning processes in organizations . Thus, with the help of this study a cross-cultural validation of DLOQ has been done. The findings might inspire some new researches in different cultures other than western ones.

Gurhan Gundaya, Gunduz ULUSOYa, Kemal KILICa, Lutfihak ALPKANb did a research study on Effects of Innovation types on firm performance. Innovation is broadly seen as an essential component of competitiveness, embedded in the organizational structures, processes, products, and services within a firm. The objective of this paper is to explore the effects of the organizational, process, product, and marketing innovations on the different aspects of firm performance, including innovative, production, market, and financial performances, based on an

empirical study covering 184 manufacturing firms in Turkey. A theoretical framework is empirically tested identifying the relationships amid innovations and firm performance through an integrated innovation-performance analysis. The results reveal the positive effects of innovations on firm performance in manufacturing industries.

Anona Armstrong, Patrick Foley (2003) did a research study on Foundations for a learning organization: organization learning mechanism. The objective of the present study was to identify the components that underpin the development and operation of a learning organization, i.e. the foundations, or organizational learning mechanisms, that support the development and maintenance of a learning organization. The study identified four facilitating mechanisms: the learning environment, identifying learning and development needs, meeting learning and development needs and applying learning in the workplace. Factor analysis of the learning environment questionnaire identified 12 scales that supported the structural hypotheses, 11 of which had minimum reliability coefficients of 0.70 and above. This research provides an instrument for systematically measuring and monitoring progress towards achieving a learning organization.

Ji Hoon Song, Baek-Kyoo (Brian) Joo, and Thomas J. Chermack(2009) were studied to assess the validity and reliability of the measurement scores of the learning organization culture, the Dimensions of Learning Organization Questionnaire (DLOQ). A total of 1,529 cases from 11 firms in two major Korean conglomerates were analyzed. Rigorous translation procedures, including both forward and backward processes, have been applied to ensure the relevance of this instrumentation in different cultural contexts. As the results of confirmatory factor analysis, simple item-internal consistency estimates, and item inter- correlation analysis show, the Korean version of the DLOQ has produced reliable measurement scores with construct validity adequate to measure the learning organization culture in the Korean context.

Alegre,Joaquín, Chiva, Ricardo(2008) did a study on how organizational learning capability affects product innovation performance. To measure organizational learning capability, they measured through through five dimensions or mechanisms: experimentation, risk taking, interaction with the external environment, dialogue and participative decision making. structural equations modelling were used to test our research hypotheses on a data set from the ceramic tile industry. Results support our conceptual model and the importance that learning has for innovation performance.

SableMa.Prieto,Revilla, Elena(2006) did a study on the development of learning to improve business performance. Based on data from 111 Spanish companies, explores the link between learning capability and the improvement of business performance by comparing how the main dimensions of learning capability—stocks of knowledge and flows of learning—impact on performance, in terms of both non-financial and financial performance. The results show that those organizations with the highest levels in their knowledge stocks and learning flows obtain a superior performance.

Margaret C. Lohman(2005) did a study on to describe the informal workplace learningexperiences of 318public school teachers and HRD professionals. Analysis of the data found that teachers rely to a greater extent on interactive learning activities while HRD professionals rely to a greater extent on independent learning activities. Both professional groups reported that two environmental factors frequently inhibit their engagement in informal learning activities: a lack of time and a lack of proximity to colleagues' work areas. Three additional environmental factors were found to inhibit HRD professionals from engaging in informal learning: an unsupportive organizational culture, the unwillingness of others to participate in informal learning activities, and the inaccessibility of subject matter experts. One additional environmental inhibitor was found for teachers: a lack of funds. Seven personal characteristics were found to enhance the motivation of both professional groups to engage in informal learning: initiative, self-efficacy, love of learning, interest in the profession, commitment to professional development, a nurturing personality, and an outgoing personality.

Andrea D. Ellinger(2005) did a study on Factors Influencing Informal Learning in a Workplace. Informal learning is one of the most prevalent forms of learning in the workplace. However, little is known about how such learning is best supported, encouraged, and developed within organizational settings. While organizational context is considered to be significant in facilitating or inhibiting informal learning, limited research has been conducted that explores such factors and how they influence informal learning. Therefore, a qualitative case study was conducted to explore the contextual factors that influence informal learning. Findings associated with the organizational contextual factors that positively and negatively influence informal learning are presented along with implications for practice and future research.

Sambrook and Stewart (2000) conducted a study using qualitative methods that examined factors influencing learning at work, which included both formal and informal learning, from the perspectives of senior managers, HRD professionals, and other employees. They identified factors at the organizational, functional and personal levels: motivation, HRD, culture, and pragmatics. Factors deemed to enhance learning were development of a learning culture and senior management support. They also acknowledged that changes in organizational structure or job design supported development of a learning culture, along with access to resources that support learning. In their study, it was not apparent how influencing factors were defined and if specific factors had a differential impact on formal learning or informal learning. Other scholars have suggested that making time and space available for learning, furnishing work tools and resources, building a climate of collaboration and trust and communities of practice, task variation, structures, and incentives for knowledge sharing can enhance informal learning.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 METHODOLOGY

Research Methodology

The purpose of research is to discover answers to questions through the application of scientific procedures. The main aim of research is to find out the truth which is hidden and which has not been discovered as yet. Though each research study has its own specific purpose, we may think of research objectives as falling into a number of following broad groupings:

- To gain familiarity with a phenomenon or to achieve new insights into it (studies with this object in view are termed as exploratory or formulative research studies);
- To portray accurately the characteristics of a particular individual, situation or a group(studies with this object in view are known as descriptive research studies);
- To determine the frequency with which something occurs or with which it is associated with something else (studies with this object in view are known as diagnostic research studies);
- To test a hypothesis of a causal relationship between variables (such studies are known as hypothesis-testing research studies).

3.2 Objective of the Study

- To explore the level of learning organization and innovation performance in energy sector through dimensions of learning organization.
- To assess the impact of dimensions of learning organization and their effect on Innovation capabilities of a Firm.

3.3 Type of Research

The research design used for this study is descriptive type of study. Descriptive research studies are those studies which are concerned with describing the characteristics of a particular individual or a group. The study explored the learning organization and Innovation performance in four firms in energy sector as they exists.

3.4 Data collection

Data was collected through personal interview method in four companies. The research was able to build a rapport with the respondents and were described the details of the study. They were ensured that the data will be only used for research process and the confidentiality shall be ensured.

Primary Data

The primary data was collected by using questionnaires. The questionnaires have 56 questions. The four point likert scale were (4 - strongly agree, 3 - agree, 2 - strongly disagree, 1 – disagree)

Secondary data

The secondary data was collected through company, research papers.

3.5 Research Period

The research period of the study was three months starting from January 26th to April 14th of 2013

3.6 Population and Sample size

The sample size consisting of 230 respondents were selected for the study from the population size of 230 employees. The sample sizes were splitter into four companies namely AMTL, Veera's Nanotech, Tetra power, Evergreen. In AMTL the sample size is 23 respondents, from Veera's Nanotech, the sample size is 27 respondents, from Tetra power, the sample size is 50 respondents, from Evergreen the sample size is 130 respondents.

3.7Sampling Technique

Here the Random sampling technique is used for this study. Here the units of population are selected according to the relevance and nature of representativeness of sampled units.

3.8 Statistical tools used

The Statistical tools used in this research are

Correlation

- The correlation is used to test the magnitude and direction between two variables.
- The correlation tool is used to identify the secondary objective of this study. To find the relationship between the learning organization and innovation performance

One way ANOVA

- The one way ANOVA is used to test the homogeneity within the groups or across the groups.

- The one way ANOVA tool is used to test the homogeneity in the dimensions of learning organization on innovation performance across the different age groups and different designations of respondents.

T –test

- T- test is used for testing the difference between means
- T – test tool is used for testing the difference between the mean score for gender across the dimensions of learning organization and innovation performance

3.9 Limitations of the study

- A learning activity happens only if an employee creates self interest and motivates himself for the professional growth and self development.

3.10 Instrument Used for the study

The DLOQ (Dimension of learning organization questionnaire) is used as an instrument for assessing the learning organization practices for the four companies in energy sector. DLOQ is sourced from the author Watkins & Marsick 2003). The seven dimensions of the learning organization questionnaire (DLOQ) (Marsick & Watkins, 2003; Yang, Watkins, & Marsick, 2004) is used:(1) create continuous learning opportunities, (2) promote inquiry and dialogue, (3) encourage collaboration and team learning, (4) create systems to capture and share learning, (5) empower people toward a collective vision, (6) connect the enterprise to the environment, and (7) provide strategic leadership for learning. For assessing the Innovation performance, few dimensions were used. The Dimensions were sourced from the author Mariesse and Mohnen(2010), the dimensions were process innovation, product innovation, co-operation activities, hamper activities. The dimensions were explained as follows:

Create continuous learning opportunities	In organization, Opportunities for ongoing education and growth are provided; learning is designed into work so that people can learn on the job.
Promote inquiry and dialogue	In the organization, people gain productive reasoning skills to express their views and the capacity to listen and inquire into the views of others.
Encourage collaboration and team learning	In the organization, Work is designed to use teams to access different modes of thinking; collaboration is valued by the culture and rewarded; teams are expected to learn by working together.
Create systems to capture and share learning	In the organization, necessary systems to share learning are created, maintained, and integrated with work; employees have access to these high- and low-technology systems like suggestion systems, electronic bulletin boards.
Empower people toward a collective vision	In the organization, people are involved in setting and implementing a shared vision; responsibility is distributed so that people are motivated to learn what they are held accountable to do.
Connect the organization to its environment	The organization is linked to its communities; people understand the

	The process innovation could either be new to the market or new to the firm. overall environment and use information The new good or service or a significantly improve goods or service with respect to to adjust work practices, people are its capabilities. The Product innovation helped to see the effect of their work on could either be new to the market or new to the firm. the entire organization.
Provide strategic leadership for learning	In organization Leadership uses learning strategically for business results; leaders model, champion, and support learning.
Process Innovation	The new or significantly improved production process, distribution method, or support activity for goods and services. The process innovation could either be new to the market or new to the firm.
Product Innovation	The new good or service or a significantly improve goods or service with respect to its capabilities. The Product innovation could either be new to the market or new to the firm.
Co-operation activities	The co-operation of our employees, teams and department within our organization, other enterprises or institutions, government bodies has improved our performance.
Hamper activities	The lack of knowledge factors like lack of qualified personnel, lack of information on markets and lack of market factors like excessive perceived economic risk

	all these factors are hampering the innovation activities or influencing a decision not to innovate in the organization.

CHAPTER 4

ANALYSIS & INTERPRETATION

This chapter deals with the analysis of demographic profile of the respondents, the relationship between the learning organization and innovation performance and also to test the difference within the groups and across the groups of demographic profile. The analysis is done for two hundred and thirty employees in energy sector.

The dimensions of learning organization and innovation performance analysis are done for the four different companies in energy sector namely AMTL, Veera's nanotech, Tetra power, Evergreen private limited. The significance of analysis is to assess the level of learning in the organization and innovation performance in the energy sector.

Based on the analysis result, the employees will be suggested to improve their learning activities and innovation performance in the organization. The analysis chart indicates the weaker and stronger areas in learning activities and innovation performance. The weaker area may be due to the lack of learning activities or lack of innovation performance, which should be considered for improvement. More focus and suggestions will be given for such areas which helps employee to improve their learning and innovation performance in the organization. The areas of stronger performance will be motivate more to excel in the learning activities as well in innovation performance.

4.1 Demographic profile of the respondents

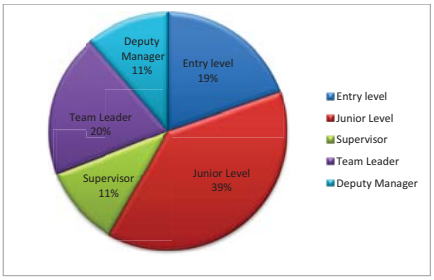
With the help of percentage analysis, demographic variables are identified in percent. The demographic variables are age, gender, designation of the two hundred and thirty respondents.

Table 4.1.1
Classification of respondents based on Designation

Designation	No. of respondents	Percentage of respondents
Entry level	45	19.6
Junior Level	89	38.7
Supervisor	25	10.9
Team Leader	45	19.6
Deputy Manager	26	11.3
Total	230	100.0

Chart 4.1.1

Classification of respondents based on Designation



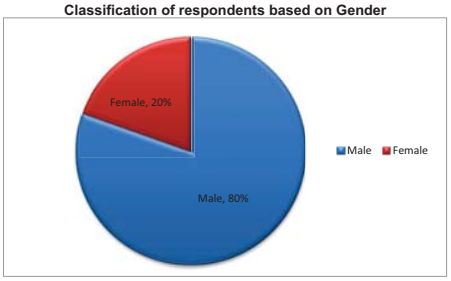
Inference

The frequency of the designation contains 230(two hundred and thirty) respondents. The designations are entry level, junior level, supervisor, team leader, deputy manager. The junior level respondents are highest with 38.7 % of the sample size. The junior level respondents comprised of technician, trainee engineer, accounts assistant and cashier. The 25 respondents belongs to the supervisor level are the lowest percentage of 10.9%. The supervisor level respondents comprised of foreman only.

Table 4.1.2
Classification of respondents based on Gender

Gender	No. of Respondents	Percentage of respondents
Male	185	80.4
Female	45	19.6

Chart 4.1.2
Classification of respondents based on Gender



Inference

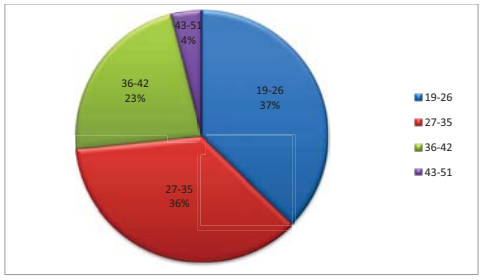
The data collection was done for 230(two hundred and thirty) sample sizes comprising of 185 male and 45 female, which is of 80.4% of male respondents and 19.6% of female respondents.

Table 4.1.3
Classification of Respondents based on Age

Age	No. Of Respondents	Percentage of respondents
19-26	86	37.4
27-35	83	36.1
36-42	52	22.6
43-51	9	3.9

Chart 4.1.3

Classification of Respondents based on Age

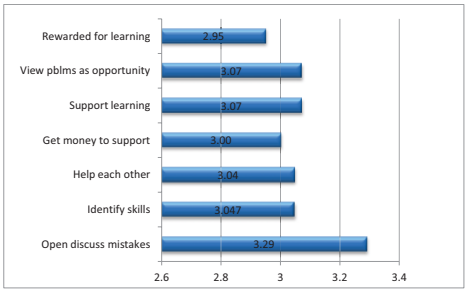


Inference

The frequency of the age group contains 230(two hundred and thirty) respondents. In that 86(eighty six) respondents belongs to the age group 19 – 26 years was the highest percentage with 37.4% of the sample size, 9 respondents belongs to the age group 43 - 51 years with the lowest percentage of 3.9%.

4.2 Exploring the extent of Learning in organization and Innovation

Chart 4.2.1
Mean score for Create continuous learning opportunities dimension for Learning in organization

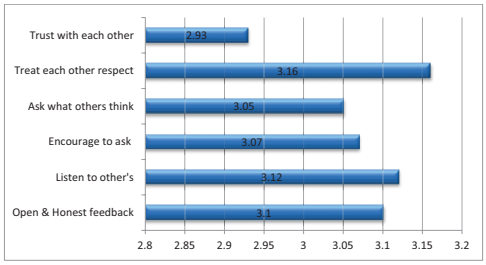


Interpretation

From the above chart it shows that the individual mean score for learning organization under the construct “continuous learning”. In continuous learning”in my organization, people openly discuss mistakes in order to learn from them” has got the highest mean score of 3.29. Therefore the respondents strongly agreed that in the organization, they discuss their mistakes very frankly in order to learn from the mistakes and also it’s an opportunity for them to learn, which they won’t repeat in future. The lowest mean score in continuous learning construct is” in my organization, people are rewarded for learning” score is 2.95. Therefore it is inferred that, the organization should provide monetary rewards for employee learning which makes employee to motivate to learn more.

Chart 4.2.2

Mean score for Promote dialogue and Inquiry Dimension for Learning in organization



Interpretation

From the above chart it shows that the individual mean score for learning organization under the construct "Dialogue & Inquiry". In Dialogue & inquiry" In my organization, people treat each other with respect" has got the highest mean score of 3.16. Therefore the respondents strongly agreed that in the organization, employees are treated respect among others which maintains a healthy environment in the organization. The lowest mean score in Dialogue & Inquiry learning construct is" in my organization, people spend time building trust with each other" score is 2.93. Therefore, the organization must encourage the employee to communicate openly among employees which help to gain integrity among employees. There should be caring atmosphere at workplace which lead better trust place among employees.

Chart 4.2.3

Mean score for Encourage collaboration and team learning dimension for Learning in organization

Interpretation

From the above bar chart it shows that the individual mean score for learning organization under the construct "Team learning". In Team Learning" In my organization, teams/groups treat members as equals, regardless of rank, culture, or other differences" has got the highest mean score of 3.23. Therefore the respondents strongly agreed that the organization treats employees equally which makes the employee to work under a healthy culture of environment. The lowest mean score in Team learning construct is" in my organization, team/groups focus both on the group's task and on how well the group is working" has got the score 3.03. Therefore, in the organization, the team must give importance for group's task and must observe on group working which leads the employee encouraged to work under team.

Chart 4.2.4

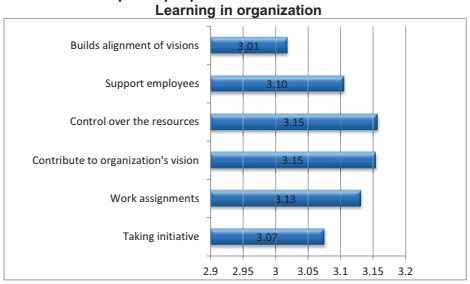
Mean score for Create systems to capture and share learning dimension for Learning in organization

Interpretation

From the above bar chart it shows that the individual mean score for learning organization under the construct "Embedded System". In Embedded System "my organization maintains up to date data base of employee skills" has got the highest mean score of 3.26. Therefore the respondents agreed that the organization update the employee database, which helps the organization to know their each employee skill level. The lowest mean score in Embedded system construct is" my organization uses two-way communication on a regular basis" has got the score 2.93. Therefore, in their organization there is no two way communication which the employees are not able to communicate easily. To overcome this, with the help of electronic bulletin boards, suggestion box, open meetings, the employees can communicate easily.

Chart 4.2.5

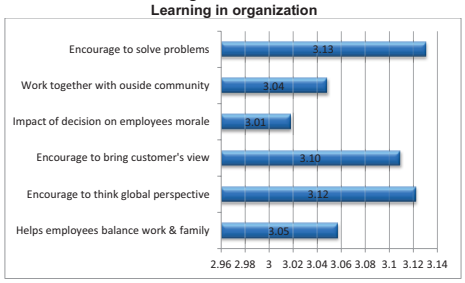
Mean score for Empower people toward a collective vision dimension for Learning in organization



Interpretation

From the above bar chart it shows that the individual mean score for learning organization under the construct "Empowerment". In Empowerment"my organization gives people control over the resources they need to accomplish their work" has got the highest mean score of 3.15. Therefore the respondents agreed that the employees are encouraged to use the resources as much they needed to accomplish their task. The lowest mean score for empowerment is"my organization builds alignment of vision across different levels and work groups" has got the score 3.01.

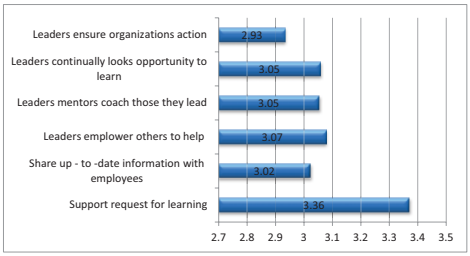
Chart 4.2.6
Mean score for Connect the organization to its environment dimension for Learning in organization



Interpretation

From the above bar chart it shows that the individual mean score for learning organization under the construct "System Connections". In System Connections "my organization encourages people to get answers from across the organization when solving problems" has got the highest mean score of 3.13. Therefore the respondents are highly encouraged to get help across the organization for problem solving. The lowest mean score for system connection is 3.01 which are"my organization considers the impact of decisions on employee morale". Therefore the organization must consider while taking decisions which should not affect the employee's morale

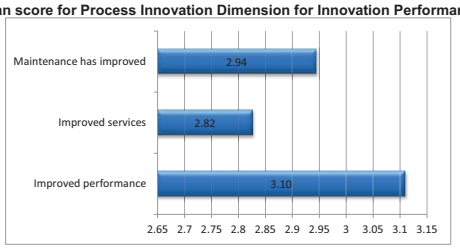
Chart 4.2.7
Mean score for Provide strategic leadership dimension for Learning in organization



Interpretation

From the above bar chart it shows that the individual mean score for learning organization under the construct "Provide leadership". In Provide leadership "my organization, leaders generally support requests for learning opportunities and training" has got the highest mean score of 3.36. Therefore the respondents are agreed strongly that the leaders in their organization are given more learning opportunities for the employees. The lowest mean score for provide leadership is 2.93 Therefore, in the organization, leaders must ensure to the employees about the organization actions are consistent with its values.

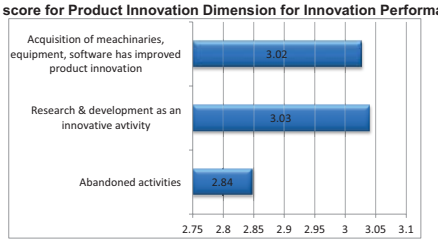
Chart 4.2.8
Mean score for Process Innovation Dimension for Innovation Performance



Interpretation

From the above chart it is inferred that individual mean score innovation performance under the construct "process innovation". In process Innovation" In organization, the newly introduced innovative products have improved our performance" has got the high mean score 3.10. Therefore the employee in the organization introduced new innovative products, which in turn improves their level of performance.

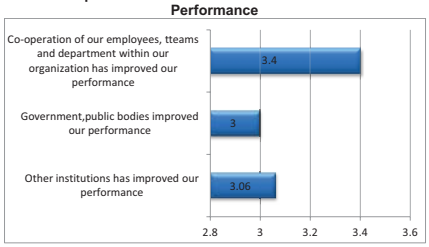
Chart 4.2.9
Mean score for Product Innovation Dimension for Innovation Performance



Interpretation

From the above chart it is inferred that individual mean score innovation performance under the construct "product innovation". In product Innovation" In organization, the research & development is also considered as an innovation activity even when not related to a product or process innovation" has got the high mean score 3.03. Therefore in the organization, the research & development product is also considered as an innovation activity.

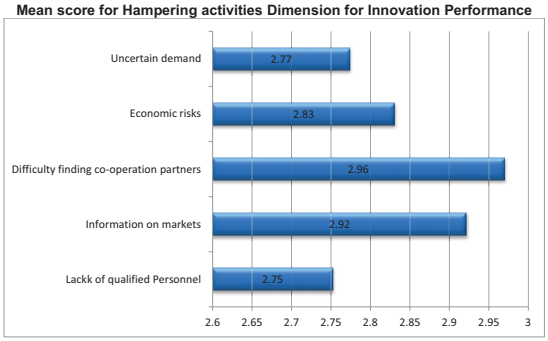
Chart 4.2.10
Mean score for Co-operation for innovation activities Dimension for Innovation Performance



Interpretation

From the above chart it is inferred that individual mean score innovation performance under the construct "co-operation activities". In co-operation activities" Co-operation of our employees, teams and department within our organization has improved our performance has got the high mean score 3.4. Therefore in the organization, the employee co-operation within teams and departments has improved the innovation.

Chart 4.2.11
Mean score for Hampering activities Dimension for Innovation Performance



Interpretation

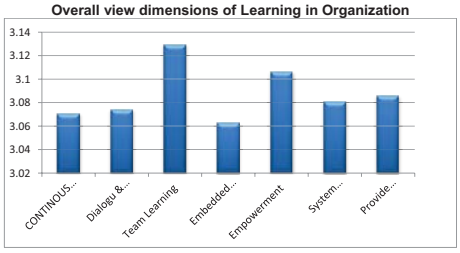
From the above chart it is inferred that individual mean score innovation performance under the construct "Hampering activities". In hampering activities" In organization, the partners co-operation is very difficult" has got the high mean score 2.96. The lowest mean score is 2.75 for lack of qualified personnel. Therefore, in the organization, there should be a qualified employee for improving the innovation activities.

4.3 Overall view of learning in organization and Innovation

Table 4.3.1
Overall view dimensions of Learning in Organization

S. No	Learning Dimensions	Mean
1	Create continuous learning opportunities	3.07
2	Promote inquiry and dialogue	3.07
3	Encourage collaboration and team learning	3.12
4	Create systems to capture and share learning	3.06
5	Empower people toward a collective vision	3.10
6	Connect the organization to its environment	3.08
7	Provide strategic leadership for learning	3.08

Chart 4.3.1
Overall view dimensions of Learning in Organization



Interpretation

From the above table it shows that the overall mean score for learning organization under the construct "Team learning" has got the highest mean score of 3.12.Therefore the respondents strongly agreed that in the organization, the employees treat as equal regardless of rank, culture, or other differences and they have the freedom to adapt their goals. The embedded system has got the lowest mean score of 3.06. Therefore the organization must provide needed information to

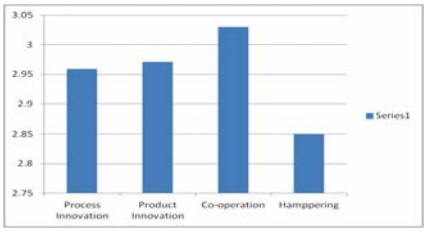
the employees and the organization must maintain the up to date database of employee skills.

Table 4.3.2
Overall view of Innovation performance dimensions

S. No	Innovation Dimensions	Mean
1	Process Innovation	2.95
2	Product Innovation	2.97
3	Co-operation	3.03
4	Hampering	2.84

Chart 4.3.2

Overall view of Innovation performance dimensions



Interpretation

From the above table it shows that the overall mean score for Innovation performance under the construct "co – operation activities" has got the highest mean score of 3.03. Therefore, the respondents have agreed that in their organization, there is a co-operation activities form other enterprises and institutions.

The Hampering activity has got the lowest mean score of 2.84. The respondents felt that there is a lack of qualified personnel, there is a difficulty in finding co-operation partners in their organization. Therefore the organization must provide

qualified personnel, market information to the employees in the organization which provide growth for the organization.

4.4 Testing for homogeneity across the dimensions of learning organization across the different groups based on designation

The Learning organization may be varying based on the demographic variables of the respondent. Since the dimensions of learning organization varies, one way ANOVA was used to find out the difference exists between the various groups of demographic variables to develop and test the hypothesis.

H0: There is homogeneity in the dimensions of learning organization across the different groups of designations.

H1: There is no homogeneity in the dimensions of learning organization across the different groups of designations.

Table no: 4.4.1
Results of ANOVA for learning organization across the groups based on Designation

ANOVA

		Sum of Squares	Df	Mean Square	F	Sig.	Ho-accepted/ Rejected
Create Continuous Learning opportunities	Between Groups	5.943	4	1.486	7.867	**.000**	Accepted
	Within Groups	42.493	225	.189			
	Total	48.436	229				
Promote inquiry and dialogue	Between Groups	1.483	4	.371	1.803	.129	Rejected
	Within Groups	46.284	225	.206			
	Total	47.767	229				
Encourage collaboration and team learning	Between Groups	2.241	4	.560	1.363	.248	Rejected
	Within Groups	92.534	225	.411			
	Total	94.776	229				
Create systems capture and share	Between Groups	4.407	4	1.102	2.984	**.020**	Accepted
	Within Groups	83.079	225	.369			

learning	Total	87.486	229				
Empower people toward a collective vision	Between Groups	1.835	4	.459	2.245	.065	Rejected
	Within Groups	45.987	225	.204			
	Total	47.822	229				
Connect the organization to its environment	Between Groups	2.308	4	.577	2.887	**.023**	Accepted
	Within Groups	44.963	225	.200			
	Total	47.271	229				
Provide strategic leadership for learning	Between Groups	5.229	4	1.307	2.787	**.027**	Accepted
	Within Groups	105.540	225	.469			
	Total	110.769	229				

Inference

The above table gives the results of the ANOVA and it can be seen that the dimensions are significant as the values are less than 0.05. Therefore the alternate hypothesis is accepted, that there is a difference between the groups in the learning organization based on designations. Therefore it can be inferred that the continuous learning has difference across the designation of employees.

4.4.1 Testing for homogeneity across the dimensions of Innovation Performance across the different groups based on designation

The Innovation Performance may be varying based on the demographic variables of the respondent. Since the dimensions of Innovation Performance varies, one way ANOVA was used to find out the difference exists between the various groups of demographic variables to develop and test the hypothesis.

H0: There is homogeneity in the dimensions of Innovation Performance across the different groups of designations.

H1: There is no homogeneity in the dimensions of Innovation Performance across the different groups of designations

Table no: 4.4.1.2
Results of ANOVA for innovation performance across the groups based on Designation

ANOVA

		Sum of Squares	Df	Mean Square	F	Sig.	Ho– accepted / Rejected
Process Innovation	Between Groups	17.959	4	4.490	9.239	.000	Accepted
	Within Groups	109.341	225	.486			
	Total	127.300	229				
Product Innovation	Between Groups	7.021	4	1.755	4.385	.002	Accepted
	Within Groups	90.069	225	.400			
	Total	97.090	229				
Co-operation	Between Groups	6.099	4	1.525	.995	.411	Rejected
	Within Groups	344.688	225	1.532			
	Total	350.787	229				
Hamper activities	Between Groups	6.126	4	1.531	2.764	.028	Accepted
	Within Groups	124.667	225	.554			
	Total	130.792	229				

Inference

The above table gives the results of the ANOVA and it can be seen that the dimensions are significant as the values are less than 0.05. Therefore the alternate hypothesis is accepted, that there is a difference between the groups in the performance Innovation based on designations. Therefore it can be inferred that the Process Innovation, Product Innovation, Hamper activities has difference the designation of employees.

4.4.2 Testing for homogeneity across the dimensions of learning organization across the different groups based on Age

The Learning organization may be varying based on the demographic variables of the respondent. Since the dimensions of learning organization varies, one way ANOVA was used to find out the difference exists between the various groups of demographic variables to develop and test the hypothesis.

H0: There is homogeneity in the dimensions of learning organization across the different age group of employees.

H1: There is no homogeneity in the dimensions of learning organization across the different age group of employees.

Table no: 4.4.2
Results of ANOVA for learning Organization across the groups based on Age

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.	Ho – accepted / Rejected
Create Continuous Learning opportunities	Between Groups	10.284	29	.355	1.859	**.007**	Accepted
	Within Groups	38.152	200	.191			
	Total	48.436	229				
Promote inquiry and dialogue	Between Groups	7.439	29	.257	1.272	.171	Rejected
	Within Groups	40.328	200	.202			
	Total	47.767	229				
Encourage collaboration and team learning	Between Groups	14.002	29	.483	1.196	.236	Rejected
	Within Groups	80.773	200	.404			
	Total	94.776	229				
Create systems capture and share learning	Between Groups	12.267	29	.423	1.125	.311	Rejected
	Within Groups	75.219	200	.376			
	Total	87.486	229				
Empower people toward a collective vision	Between Groups	11.529	29	.398	2.191	**.001**	Accepted
	Within Groups	36.294	200	.181			
	Total	47.822	229				
Connect the organization to its environment	Between Groups	6.531	29	.225	1.106	.333	Rejected
	Within Groups	40.740	200	.204			
	Total	47.271	229				
Provide strategic leadership for learning	Between Groups	20.376	29	.703	1.555	**.043**	Accepted
	Within Groups	90.393	200	.452			
	Total	110.769	229				

Inference

The above table gives the results of the ANOVA and it can be seen that the dimensions are significant as the values are less than 0.05. Therefore the alternate hypothesis is accepted, that there is a difference in the learning organization across different age groups. Therefore it can be inferred that continuous learning, empowerment, provide leadership has difference across the employees age.

4.4.2.1 Testing for homogeneity across the dimensions of innovation performance across the different groups based on Age

The Innovation Performance may be varying based on the demographic variables of the respondent. Since the dimensions of innovation performance varies, one way ANOVA was used to find out the difference exists between the various groups of demographic variables to develop and test the hypothesis.

H0: There is homogeneity in the dimensions of Innovation performance across the different age group of employees.

H1: There is no homogeneity in the dimensions of Innovation performance across the different age group of employees.

Table no: 4.4.2.1
Results of ANOVA for Innovation performance across the groups based on Age

ANOVA

		Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**	**Ho – accepted / Rejected**
Process Innovation	Between Groups	27.745	29	.957	1.922	**.005**	Accepted
	Within Groups	99.555	200	.498			
	Total	127.300	229				
Product Innovation	Between Groups	13.971	29	.482	1.159	.273	Rejected
	Within Groups	83.118	200	.416			
	Total	97.090	229				
Cooperation Activities	Between Groups	144.034	29	4.967	4.804	**.000**	Accepted
	Within Groups	206.753	200	1.034			
	Total	350.787	229				

Hampering Activities	Between Groups	23.333	29	.805	1.497	.058	Rejected
	Within Groups	107.460	200	.537			
	Total	130.792	229				

Inference

The above table gives the results of the ANOVA and it can be seen that the dimensions are significant as the values are less than 0.05. Therefore the alternate hypothesis is accepted, that there is a difference in the Innovation Performance across process innovation, co-operation activities affects the employees age.

4.6 Correlation Analysis for dimension of Learning Organization and dimensions of Innovation Performance

The objective of this study is to test the relationship between the learning organization and Innovation performance. In order to meet the objective, the study tests if there is any exist correlation between the learning organization dimensions and Innovation performance dimensions. Correlation analysis was done and the hypothesis were developed, tested and the results are exhibited in the below table.

Table no 4.6.1

Correlation for Learning Organization and Innovation Performance

	CL	DI	TL	EMS	EMP	SYSC	PL	PCI	PPI	CO	HP
CL	1										
DI	.505**	1									
	.000										
TL	.423**	.369**	1								
	.000	.000									
EMS	.530**	.477**	.299**	1							
	.000	.000	.000								
EMP	.510**	.465**	.364**	.462**	1						
	.000	.000	.000	.000							
SYSC	.546**	.545**	.385**	.485**	.532**	1					
	.000	.000	.000	.000	.000						
PL	.472**	.386**	.312**	.433**	.448**	.422**	1				

	.000	.000	.000	.000	.000	.000					
PCI	**.636****	.413**	.354**	.490**	.447**	.510**	.412**	1			
	.000	.000	.000	.000	.000	.000	.000				
PPI	.396**	.341**	.343**	.306**	.363**	.370**	.359**	.332**	1		
	.000	.000	.000	.000	.000	.000	.000	.000			
CO	.194**	.156*	.138*	.181**	**.110**	.180**	.173**	.289**	.169*	1	
	.003	.018	.036	.006	.096	.006	.008	.000	.010		
HP	-.015	.015	-.031	.099	-.104	.048	.013	.086	.138*	.041	1
	.821	.815	.642	.134	.117	.469	.850	.195	.037	.536	

*(CI – create continuous learning opportunity; DI – promote inquiry & Dialogue; TL – encourage collaboration and team learning; EMS Create systems capture and share learning; EMP- Empower people toward a collective vision; SYSC- Connect the organization to its environment; PL - Provide strategic leadership for learning; PCI –process innovation; PPI – product innovation; CO- co-operation activities; HI-hampering activities)

Inference

The above table shows the correlation between the Learning Organization dimensions and Innovation Performance dimensions. It shows that all the dimensions of learning organization with the dimensions of Innovation Performance are correlated and the values range from .110 to 0.636 and they are significant. The highest correlation is for Process Innovation followed by System Connections. The process innovation has moderately correlated with continuous learning. The lowest correlation is for Co-operation activities.

Table no 4.6.2

Correlation for Dimension of Learning Organization

	CI	DI	TL	EMS	EMP	SYSC	PL
CI	1						
DI	.505**	1					
	.000						
TL	.423**	.369**	1				
	.000	.000					
EMS	.530**	.477**	**.299****	1			
	.000	.000	.000				
EMP	.510**	.465**	.364**	.462**	1		
	.000	.000	.000	.000			
SYSC	**.546****	.545**	.385**	.485**	**.532****	1	

	.000	.000	.000	.000	.000		
PL	.472**	.386**	.312**	.433**	.448**	.422**	1
	.000	.000	.000	.000	.000	.000	

*(CI – create continuous learning opportunity; DI – promote inquiry & Dialogue; TL – encourage collaboration and team learning; EMS Create systems capture and share learning; EMP- Empower people toward a collective vision; SYSC- Connect the organization to its environment; PL - Provide strategic leadership for learning; PCI –process innovation; PPI – product innovation; CO- co-operation activities; HI-hampering activities)

Inference

The above table shows the correlation for the dimension of Learning Organization dimensions. It shows that all the dimensions of learning organization are positively correlated and the values range from .299 to .546 and they are significant. The highest correlation is for Continuous learning followed by Empowerment. Connect the organization to its environment has moderately with continuous learning. The lowest correlation is for Team learning.

Table no 4.6.3

Correlation for Innovation Performance

	Process	Product	Co-operation Activities	Hamper Activities
Process	1			
Product	**.332****	1		
	.000			
Co - operation	.289**	**.169***	1	
	.000	.010		
Hamper	.086	.138*	.041	1
	.195	.037	.536	

Inference

The above table shows the correlation for the dimension of Innovation Performance. It shows that all the dimensions of Innovation Performance are positively correlated and the values range from .332 to .169 and they are significant. The highest correlation is for

Process innovation. The product innovation is moderately correlated with process innovation. The lowest correlation is for Product Innovation.

4.7 Testing the difference between the mean score for gender across the dimensions of learning organization and innovation performance

Table 4.7.1

The difference between the mean score for gender across the dimensions of learning organization and innovation performance

Dimensions	**Gender**	**Mean**	**Standard Deviation**	**t**	**df**	**Signi.**	**Ho – Accepted/ Rejected**
Create Continuous Learning opportunities	Male	3.07	.456	.525	228	.600	Rejected
	Female	3.03	.479	.509	64.790	.612	Rejected
Promote inquiry and dialogue	Male	3.08	.439	.843	228	.400	Rejected
	Female	3.02	.525	.756	59.828	.453	Rejected
Encourage collaboration and team learning	Male	3.14	.672	.601	228	.548	Rejected
	Female	3.07	.512	.708	85.032	.481	Rejected
Create systems capture and share learning	Male	3.06	.643	.254	228	.800	Rejected
	Female	3.04	.507	.294	82.266	.770	Rejected
Empower people toward a collective vision	Male	3.12	.450	1.054	228	.293	Rejected
	Female	3.04	.484	1.009	63.805	.317	Rejected
Connect the organization to its environment	Male	3.09	.443	1.139	228	.256	Rejected
	Female	3.01	.499	1.058	61.889	.294	Rejected
Provide strategic leadership for learning	Male	3.09	.744	.265	228	.791	Rejected
	Female	3.06	.446	.356	111.612	.722	Rejected
Process Innovation	Male	2.98	.741	.856	228	.393	Rejected
	Female	2.87	.766	.839	65.504	.404	Rejected
Product Innovation	Male	3.01	.619	1.885	228	.061	Rejected
	Female	2.80	.754	1.673	59.272	.100	Rejected
Co – operation activities	Male	3.05	1.333	.519	228	.604	Rejected
	Female	2.94	.733	.729	124.118	.468	Rejected
Hamper Activities	Male	2.83	.760	-.606	228	.545	Rejected
	Female	2.91	.743	-.615	68.201	.541	Rejected

Inference

The above table shows the difference between the dimensions of learning organization and innovation performance across the gender. There is no difference between the dimensions of learning organization across gender.

4.8 Conceptual Framework

The model of an effective learning organization is considered as one that has the capability to integrate people and organization structures in order to facilitate continuous learning and encourage organization changes (Yang et al; 2004). Create continuous learning opportunities has a positive influence on innovation performance. In organization, people help each other to learn, support each other in learning and are rewarded for learning. These initiatives tend to increase their interest to collaborate with other institutions for innovation activities. Hence the following hypotheses were formulated:

H1: Create continuous learning has a positive impact which tends to increase the organization co-operation activities for innovation.

To promote inquiry and dialogue refers to the opportunities given to employees to express their views and opinions and capacity to listen and inquire the others view. The inquiry and dialogue tends to increase their co-operation activities. The inquiry and dialogue has a positive influence on co-operation activities. Hence the following hypothesis was formulated:

H2: Inquiry & Dialogue has a positive impact which tends to increase their co-operation activities.

Encourage collaboration and team learning refers that the organization expects the employees to work in teams. The teams or groups are expected to learn and work together. The employees work is designed to use teams to access different modes of

thinking. The encourage collaboration and team learning tends to increase the employee's interest to work with other institutions as well as in teams. Encourage collaboration and team learning has a positive influence on co-operation activities. Hence the following hypothesis was formulated:

H3: Encourage collaboration and team learning has positive impact which tends to increase the organization co-operation activities.

In organization, necessary systems are created like suggestion system, meetings, electronic bulletin boards are maintained and integrated with work for share their learning and capture what is learned in the work. Employees are allowed to access these systems. The Create systems to capture and share learning focus on ability to create a learning system to share learning among employees in the organization. The create systems to capture and share learning has a positive influence on co-operation activities. Hence the following hypothesis was formulated:

H4: Create systems to capture and share learning has a positive impact on co-operation activities.

To empower people toward a collective vision, people in organization are involved in setting, owning, and implementing a joint vision. People are given choices in their work assignments; supports employees who take decision making; this motivates the people to learn. Empower people toward a collective vision has tend to influence their learning activities in other institutions. Hence the following hypothesis was formulated:

H5: Empower people toward a collective vision has positive impact on collaborative institutions which tends to increase the innovation.

The organization is linked to its communities; people understand the overall environment and use information to adjust work practices; encourages people to think from a global perspective; people work together with outside communities to meet mutual needs; people are helped to see the effect of their work on the entire

organization. Connect the organization to its environment has positive impact on collaborative institutions. Hence the following hypothesis was formulated:

H6: Connect the organization to its environment has positive impact on other institutions which tend to increase the innovation.

In organization leadership is important to help employee to create a collective vision toward which the entire organization can work in learning organization Leaders mentor and coach those they lead; leaders share up to date information with employees about competitors, industry trends and organizational directions. Provide strategic leadership has positive influence on collaborative institutions. Hence the following hypothesis was formulated:

H7: Provide strategic leadership has positive impact on co-operation activities.

The entire organization is able to have co-operated learning with suppliers, other institutions, government or public sectors, which improved their innovation. With the help of learning, employee has introduced new distribution method, new logistics method, and new products. The co-operation activity has positive impact on process innovation. Hence the following hypothesis was formulated:

H8: A Co-operation activity has positive impact on process innovation.

The entire organization is able to have co-operated learning with suppliers, other institutions, government or public sectors, which improved their innovation. With the help of learning, employee has introduced innovation activities like acquisition of machineries; software; industrial design; equipment which improved their innovation. The co-operation activity has positive impact on product innovation. Hence the following hypothesis was formulated:

H9: A co-operation activity has positive impact on product innovation.

The some factors like lack of qualified personnel; lack of information on markets; lack of difficulty in finding co-operation with partners; which affects the innovation activities or decision making on innovate products. Such activities are hamper activities. The

hamper activities negatively affect the product innovation. Hence the following hypothesis was formulated:

H10: A hamper activities has negative impact on product innovation.

The some factors like lack of qualified personnel; lack of information on markets; lack of difficulty in finding co-operation with partners; which affects the innovation activities or decision making on innovate products. Such activities are hamper activities. The hamper activities negatively affect the process innovation. Hence the following hypothesis was formulated:

H11: A hamper activities has negative impact on process innovation.

Conceptual Framework for impact of learning organization on Process innovation performance

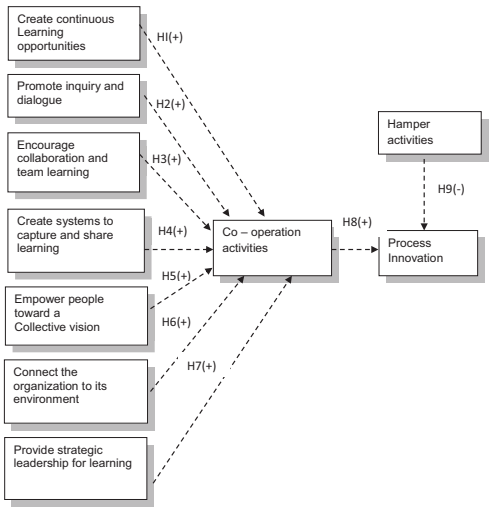


Table 4.8.1
Reliability and validity of constructs

Construct	Composite Reliability	AVE
Create continuous learning opportunity	0.74	0.59
Promote Inquiry & dialogue	0.70	0.55
Encourage collaboration and team learning	0.70	0.54
Create systems to capture and share knowledge	0.76	0.59
Empower people to collective vision	0.70	0.58
Connect the organization to its environment	0.71	0.59
Provide strategic leadership for learning	0.71	0.56
Co-operation activity	0.75	0.60
Product innovation	0.85	0.74
Hamper activities	0.70	0.53

Inference

Reliability and validity tests were conducted for all the constructs in the conceptual model. The reliability of the ten constructs used in the study was carried out using VPLS software. The reliability of the constructs refers to the accuracy with which the constructs repeatedly measure the same phenomenon within permissible variation. The composite reliability for internal consistency of the constructs was tested and was above 0.7.

Model of learning organization impact on Process innovation performance

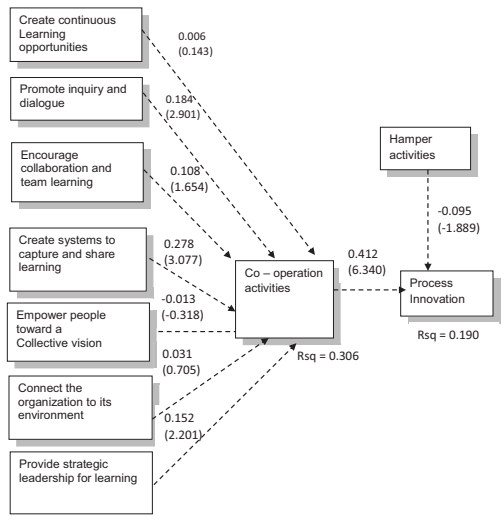


Table 4.8.2
Structural model boot strap

	Hypothesis	Standardized path coefficient	*t*-statistics
H1	Create continuous learning opportunity → Co-operation activity	0.00	0.14
H2	Promote Inquiry & dialogue → Co-operation activity	0.18	2.90
H3	Encourage collaboration and team learning → Co-operation activity	0.10	1.65
H4	Create systems to capture and share knowledge → Co-operation activity	0.27	**3.07**
H5	Empower people to collective vision → Co-operation activity	0.01	0.31
H6	Connect the organization to its environment → Co-operation activity	0.03	0.7.
H7	Provide strategic leadership for learning → Co-operation activity	0.15	2.20
H8	Co-operation activity → Process Innovation	0.41	6.34
H9	Hamper activity → Process Innovation	-0.09	-1.88

Interpretation

The R square of co-operation activities, it can be concluded that 30% of the overall variation in co-operation activity is of sample as explained by the seven constructs, namely create continuous learning opportunity; promote inquiry and dialogue; encourage collaboration and team learning; create systems to capture and share knowledge; empower people to collective vision; connect the organization to its environment; provide leadership. Among seven, co-operation activity create is influenced positively to a greater extent by system and capture share knowledge with a path coefficient of 0.27. Promote inquiry and dialogue and provide strategic leadership contribute to 15 and 18% of the variations in co-operation activity. Therefore, the hypothesis that above seven constructs affects co-operation activity is accepted and evident. The next hypothesis to be tested is that of the impact of co-operation activities on process innovation. The model results depict that co-operation activity intention is able to explain 19% of the variation in the process innovation. The path coefficient for co-operation activity to process innovation was found to be 0.41.

Conceptual Framework for impact of learning organization on Product innovation performance

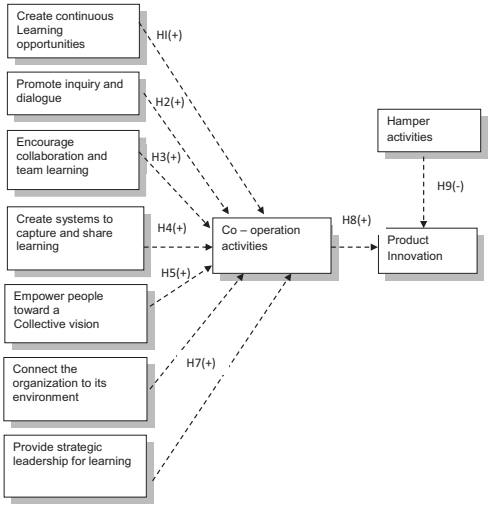


Table 4.8.3
Reliability and validity of constructs

Construct	Composite Reliability	AVE
Create continuous learning opportunity	0.74	0.59
Promote Inquiry & dialogue	0.70	0.55
Encourage collaboration and team learning	0.70	0.54
Create systems to capture and share knowledge	0.76	0.59
Empower people to collective vision	0.69	0.58
Connect the organization to its environment	0.71	0.59
Provide strategic leadership for learning	0.71	0.56
Co-operation activity	0.75	0.60
Product innovation	0.71	0.56
Hamper activities	0.62	0.51

Interpretation

Reliability and validity tests were conducted for all the constructs in the conceptual model. The reliability of the ten constructs used in the study was carried out using VPLS software. The reliability of the constructs refers to the accuracy with which the constructs repeatedly measure the same phenomenon within permissible variation. The composite reliability for internal consistency of the constructs was tested and was above 0.7.

Model of learning organization impact on Product innovation performance

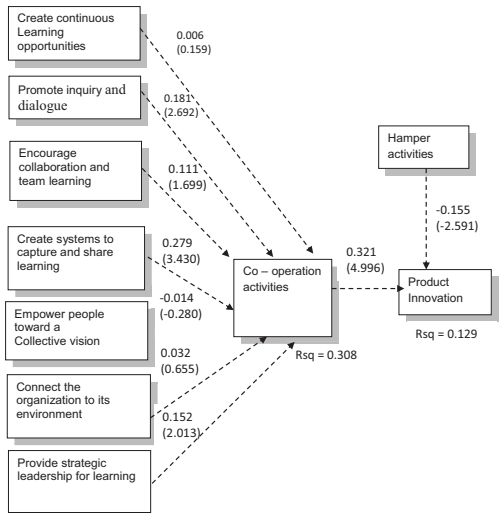


Table 4.8.4
Structural model boot strap

Hypothesis		Standardized path coefficient	*t*-statistics
H1	Create continuous learning opportunity → Co-operation activity	0.00	0.15
H2	Promote Inquiry & dialogue → Co-operation activity	0.18	2.69
H3	Encourage collaboration and team learning → Co-operation activity	0.11	1.69
H4	Create systems to capture and share knowledge → Co-operation activity	0.27	3.43
H5	Empower people to collective vision → Co-operation activity	0.01	0.28
H6	Connect the organization to its environment → Co-operation activity	0.03	0.65
H7	Provide strategic leadership for learning → Co-operation activity	0.15	2.01
H8	Co-operation activity → Product Innovation	0.32	4.99
H9	Hamper activity → Product Innovation	-0.15	-2.59

Interpretation

The R square of co-operation activities, it can be concluded that 30% of the overall variation in co-operation activity is of sample as explained by the seven constructs, namely create continuous learning opportunity; promote inquiry and dialogue; encourage collaboration and team learning; create systems to capture and share knowledge; empower people to collective vision; connect the organization to its environment; provide leadership. Among seven, co-operation activity create is influenced positively to a greater extent by system and capture share knowledge with a path coefficient of 0.27. Promote inquiry and dialogue and provide strategic leadership contribute to 15 and 18% of the variations in co-operation activity. Therefore, the hypothesis that above seven constructs affects co-operation activity is accepted and evident. The next hypothesis to be tested is that of the impact of co-operation activities on product innovation. The model results depict that co-operation activity intention is able to explain 19% of the variation in the product innovation. The path coefficient for co-operation activity to product innovation was found to be 0.32.

CHAPTER 5

FINDINGS, SUGGESTIONS & CONCLUSIONS

5.1 Findings

The findings of dimensions of learning organization are follows.

- The continuous learning dimension indicates that the employees in the organization strongly agree that they openly discuss their mistakes in order to learn from them.
- The Dialogue & Inquiry dimension indicates that the employees in the organization strongly agree that they treat each other with respect.
- The team learning dimension indicates that the employees in the organization strongly agree that their teams/groups are confident that the organization will act on their recommendations.
- The embedded system dimensions indicates that the employee in the organization strongly agree that they maintains an up-to-date data base of employee skills.
- The empowerment dimensions indicates that the employee in the organization strongly agree that they gives control over the resources they need to accomplish their work.
- The system connections dimensions indicates that the employee in the organization strongly agree that they encourages people to get answers from across the organization when solving problems.
- The provide leadership dimensions indicates that the employee in the organization strongly agree that their leaders generally support requests for learning opportunities and training.

- The process innovation dimensions indicates that the employee in the organization strongly agree that they newly introduced innovative products have improved our performances.
- The product innovation dimensions indicates that the employee in the organization strongly agree that their research & development is also considered as an innovation activity even when not related to a product innovation
- The co-operation dimensions indicate that the employees in the organization strongly agree that they get co-operation from other enterprises or institutions for innovation activities which improved their performances.
- The hampering dimensions indicate that the employees in the organization strongly agree that they found difficulty in finding information on markets.
- The study found that there is a difference between the learning organization and innovation performance across the different groups based on designations.
- The dimensions of learning organization with the dimensions of Innovation Performance are positively correlated.
- The continuous learning was found to have highest impact over process innovation.
- The team learning was found to have highest impact over product innovation.
- The embedded system was found to have highest impact over co-operation activities.
- The embedded system was found to have highest impact over hampering activities.

5.2 Suggestions

The proven results from the analysis of dimensions of learning organization and innovation performance has indicated that every organization have to improve in certain areas to develop their learning environment. Each and every organization is

advised and suggested to follow the below suggestions to improve themselves and for the betterment of the organization.

- Organization should encourage employees who are found to make mistakes should be given an opportunity to confess and correct themselves to reduce the errors made by that mistake.
- Organization should train the team leaders to listen to the employees' mistakes to take corrective actions.
- Organization should conduct frequently a skill identification programs for the workers, to identify the hidden skills among the workers which could be utilised effectively for the growth of the company and the employees.
- Organization should support employees for learning either to improve their own skills or for their career development.
- The management should provide monetary support for their self learning process.
- Organization should encourage and train the employees to listen to their peers and assist them in various activities like giving respect speaking open honest, building trust and spending time in useful way.
- Proper teams/groups should be formed within the organization and should be given complete freedom in learning to achieve the organizational goals.
- Inside organization, each team/groups should be treated with respect to maintain a healthy environment within the company.
- Interpersonal and inter team discussions, debates, arguments should be entertained for an effective knowledge transfer and cross cultural learning.
- The organization must inform the employees to follow suggestion systems and Electronic bulletin boards, because this will help two way communication and transfer of information.
- Organization must motivate each employee to take an initiative action and proper recognition should be done for such action.
- Organization must views every employees growth.

- Organization has to design a work strategy which should not overload the day to day work practices of an employee.
- In organization the ethical work practices should be entertained and encouraged among the employees to aid them to balance the work and family.
- As the company policies are created to fit in the global market so as the employees should be moulded to think and fit in the global perspective.
- Any unsolved issues or problems indicated by any employee should be ascertained immediately.
- Organization should give opportunities for every employee who steps forward with a solution to resolve such issues should be encouraged.
- Organization should encourage the team leaders and managers should create learning and training opportunities to the employees.
- Organization must provide the information about competitors, industry trends to employees and make them share those details with their team leaders and managers.
- Each employee should be guided through mentoring principles with the valuable organizational vision.
- Organization should encourage all employees and advised to adapt to new innovative products and services to improve the organizational performances.
- Organization should encourage each employee to do other company site visits, to visit trade fairs etc, to bring in innovation activities they have learnt and acquired from other enterprises.

5.3 Implementation

In order to improve learning and innovation performance at tetra power, the following initiatives were devised and implemented during the month of March and April.

- Hunt for Innovative Tetrians (HIT)
- Fortnightly Forums
- Pitfalls Presentation

Hunt for Innovative Tetrians (HIT)

- The Hunt for Innovative Tetrians was conducted for fifty employees in tetra power.
- In order to assess the employee ideas, this concept was evolved.
- The employee has to come up with a new idea.
- The employee s idea were reviewed by the technical director.
- HIT helped the employee to realise their level of knowledge and skills they have.
- Employee's came out with many new ideas.
- Those ideas was reviewed, the best idea was considered for the product development.
- HIT was a new concept for the employee's in tetra power.
- The management made it mandated to conduct the program (HIT) every year.

Fortnightly Forums

- The fortnightly forum presentation was scheduled and conducted in tetra power on the second and fourth Saturdays.
- The presentation will be held once in fifteen days.
- Th employee's (maximum 3 for three different teams) have to present any kind of topic that is novel or recent in their area of expertise.
- This will also help them to get to know the recent developments as well as improve their presentation skills.
- The employee presentation was reviewed by the team leaders and a group of employees who are willing to attend the sessions.
- The employee those who not perform well, the team leader will motivate them to perform well.

Tetrians Involve

- The employee's those who regularly go for site location, product installation, product service will face constrains and learning's during the process. Many a times these learning's go unnoticed and un attended by others. This

initiative was developed to tap such learning's and to record them for the benefit of others.

- Those errors will be discussed among employees.
- The presentation was done by the employee's about the past experience in the site location, product installation, product service, and it was documented for future purpose.
- The purpose of conducting this presentation is to learn from errors, so that each and every employee can learn.
- The employees openly discuss their mistakes in order to learn from them.
- The management mandate to conduct such kind of presentation as soon the project is done.

5.4 Conclusions

There is an impact between the learning organization and innovation performance of employees in an organization.

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