Managing Generational Differences in Leadership Development

The few remaining baby boomer CEOs are waiting for their retirement on one hand and struggling hard to find their own replacement on the other. While it is a challenge to find 'competent and committed' leaders of next generation, i.e., Gen-X people, it is indeed becoming an even bigger challenge to find those who can manage people of their next generation, i.e., Gen-Y people.'The wisdom that has helped baby boomers to lead the distinctly different younger generations is now creating an inexpressible gap with their slow and steady departure. In case this not addressed immediately, the retirement of the last few of the baby boomers is going to create a 'real time wisdom gap,' in all probabilities. Therefore, it is high time for organizations to follow their lead and engage in a continual process of addressing the different training needs of leaders of different generations. As a 'one size fits all' type of training calendar would not be appropriate; organizations must adopt scientific approaches to figure out 'whom to train, what to train, when to train and how much to train etc.' and then integrate various training methodologies that best suit the exclusive developmental needs of Generation-X (People born between 1965-80) and the Millenials (People born between 1981-2000, more popularly known as Generation-Y.)

Key Words : Leadership, Leadership Development, Baby Boomers, Generation-X, Generation-Y, Millennials, Generational Differences, Training Needs.

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(1.0) Introduction :

In the context of training and developing leaders; researchers, academicians and HR professionals often come across dichotomised views from authors, subject matter experts (SMEs) and others who constantly indulge themselves into, at least the following two irreconcilable debates

(a) Knowledge and Wisdom Gap : There is no disagreement with the fact that the baby boomers possess 'historical wisdom' but the validity/applicability of such wisdom in current times is the point of debate.

(b) Demand vs Supply of Manpower for leadership roles at various levels : There are strong arguments and equally strong disagreements on whether there is indeed a shortage of supply of competent manpower to occupy leadership roles that are being/to be vacated by baby boomers and the leadership roles that would become available for millennials as gen-x people move up the corporate ladder.

Apart from these debates, several research results show that in spite of spending millions of dollars on training and development of leaders, most of the organizations are not in a position to derive best of the results; perhaps due to lack of clarity on the above aspects and several other issues that are not mentioned also.

This calls for more research and thought provoking discussions to throw some light on why this happens in organizations and how synchronization of manpower of different generations could help reduce the gap, if not completely bridge.

(2.0) Objectives :

(1) The discuss on the 'utility value' of 'leadership wisdom' of baby boomers for the younger generations.

(2) To examine theavailability of manpower of Gen-X and Gen-Y, across the world, especially in India.

(3) To discuss the aspects of quality and quantity of manpower and the possibility of their success in leadership roles.
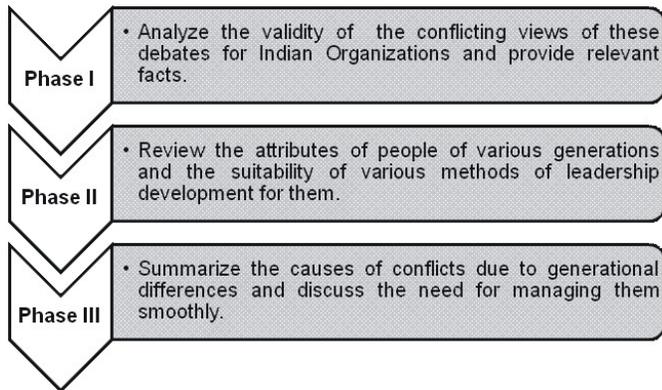
(4) To compare and differentiatevarious attributes of people of various generations.

(5) To review the widely used leadership development methods and the suitability of each of the methods for various generations.

(3.0) Methodology :

For the purpose of discussion, a general assumption is being made that baby boomer leaders would at senior level leadership positions; gen-x people would be at middle level leadership positions and gen-y people would be at junior level leadership positions.

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Phase I	• Analyze the validity of the conflicting views of these debates for Indian Organizations and provide relevant facts.
Phase II	• Review the attributes of people of various generations and the suitability of various methods of leadership development for them.
Phase III	• Summarize the causes of conflicts due to generational differences and discuss the need for managing them smoothly.

Phase-I : Discussion on the debatable points at hand

(a) Knowledge and Wisdom Gap : The debate is about the validity and applicability of the 'historical wisdom' gained by the baby boomers in the existing situations. The term 'historical wisdom' is being popularized with a derogatory intention of calling it 'old modelled thinking.' There are increasing views that managing the rapid yet ambiguous changes that constantly keep rocking today's business world require different levels of competencies altogether & a wide variety of newer competencies and that the acumen gained by baby boomers during their times of predictable environments would not be sufficient/effective now.

Keeping in mind the fact that this is a period of leadership transition, no matter how historical, the validity of such wisdom is a definite YES, at least for Indian Organizations; mainly because of (at least) the following reasons :

(i) Baby boomers are currently the 'decision makers' in a majority of the organizations in India and a considerable percentage across the world.They would necessarily have developed their leadership abilities based on fundamentals viz. organizational philosophy, culture, vision, values and mission vis-a-vis the business requirements that evolved them as leaders from time to time.

(ii) They have directly witnessed the modernization and computerization and directly participated in globalization of businesses. Therefore, their perception on how to improvise decision making in the changing times would be more realistic, at least during handing-over of charge to Gen-Xers.

(iii) By the time all the baby boomers retire, at least few of them would get to lead some teams of Millenials, whose strengths are radically different from those of Gen-Xers. This gives them the clear advantage of and the ability to intertwine these differences with their rich experience and help both these generations to work in unison.

(iv) Though aged, many of the retired baby boomers are healthy enough to provide consultancy services in advisory roles; their services can be utilized for coaching and mentoring the leaders of younger generations.

(b) Demand vs Supply of Manpower : The percentage of baby boomers at top positions in Indian organizations, whether MNCs or small time local players, in any industry vertical, is considerably high at this point of time. But very soon, the baby boomers will all be retired and the positions vacated by them will need to be filled by Generation-X (people born between 1965 and 1980, also referred to as Gen-Xers.)

The point of discussion/debate here is about the availability of the required quality and quantity of manpower resources from Gen-X cohorts and that of Gen-Y cohorts (people born between 1981 and 2000) who need to move to middle management level positions to be vacated by Gen-Xers. A recent report stated that, in United States, around 78 million baby boomers are on the verge of retirement and in comparison, there are less than 58 million Gen-Xers who are ready, i.e., competent and willing, to take up higher positions. This is a major demographic shift of cohorts that is expected to causes a massive talent gap of 20 million; this is strong enough to push the US into a serious labour market crisis. On the other hand, throughout European Union, there are wide variations; while some countries are facing crisis like US, some countries like Sweden reported that large number of older workers are still in a position to continue to work and collect pay cheques on a continual basis.

The labour market trends in India are certainly upbeat as compared to the other counties of BRIC nations (Brazil, Russia, India and China) which are considered to be the countries which have the potential to become the top economies in near future.A demographically young India will add 110 million workers by 2020; in contrast to China's 15 million and Japan's minus 3 million.

But quite contrary to the perception this may give, a most recent report by Manpower Group suggested that percentage of Indian companies having difficulty to fill jobs is higher than the global average and far too higher than that of China.
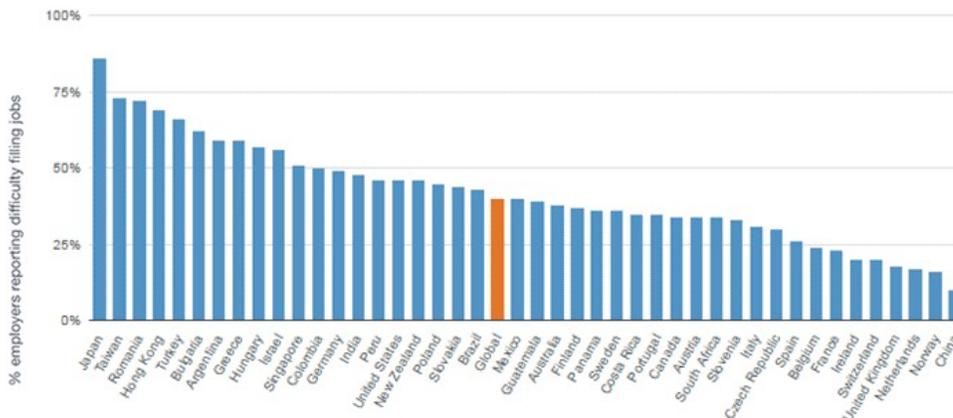
Source : 2016/2017 Talent Shortage Survey by Manpower Group.

Being neighbouring countries and both being growing economies, there will be comparisons between India and China in every aspect including availability of leadership resources. While it is obvious and apparent that China is much ahead of India in the global business state of affairs, India is being publicized as the next China by the entire world.

But if we can re-examine the facts beyond hype & trumpeting; however motivating the figures maybe, the ground realities need to be written in a dissimilar vocabulary. English speaking population, democracy may help

Most Effective Leadership Development Methods at Each Management Level

Graph 1

Percent of Leaders Rating the Method as Effective

Percent of Organizations Using Method	Method	First-Level	Mid-Level	Higher-Level	Senior-Level
63%	Developmental Assignments	68%	68%	73%	76%
81%	Formal Training	63%	61%	57% / 56%	54% / 54%
68%	Coaching from Current Manager	51%	53%		
46%	Coaching from Internal Coaches	41%	43%	43%	46%
33%	Coaching from External Coaches	40%	38%	41%	37%
13%	Technology-Enabled Methods	9%	8%	8%	8%

India to appear to have an advantage over China. But, in comparison, India doesn't have the required economic growth rate, the kind of infrastructure, the discipline, the stability and sustainability that helped China to rise. (For further understanding, the fate of Indian business acquisitions by Tata (Land Rover & Jaguar,) Airtel (Zain,) Reliance (Suzlon, Aban) etc. may be studied.) Very soon, Indian organizations will see the disintegration of these illusions and understand the fact that India is not in the same league as China.

The above discussion shows that the manpower related issue for Indian organizations is inadequate quality and excess quantity. But this does not indicate the need to filter quantity for the sake of quality. For the kind of ambitions that India as a nation has, it is an imperative for the Indian organizations to

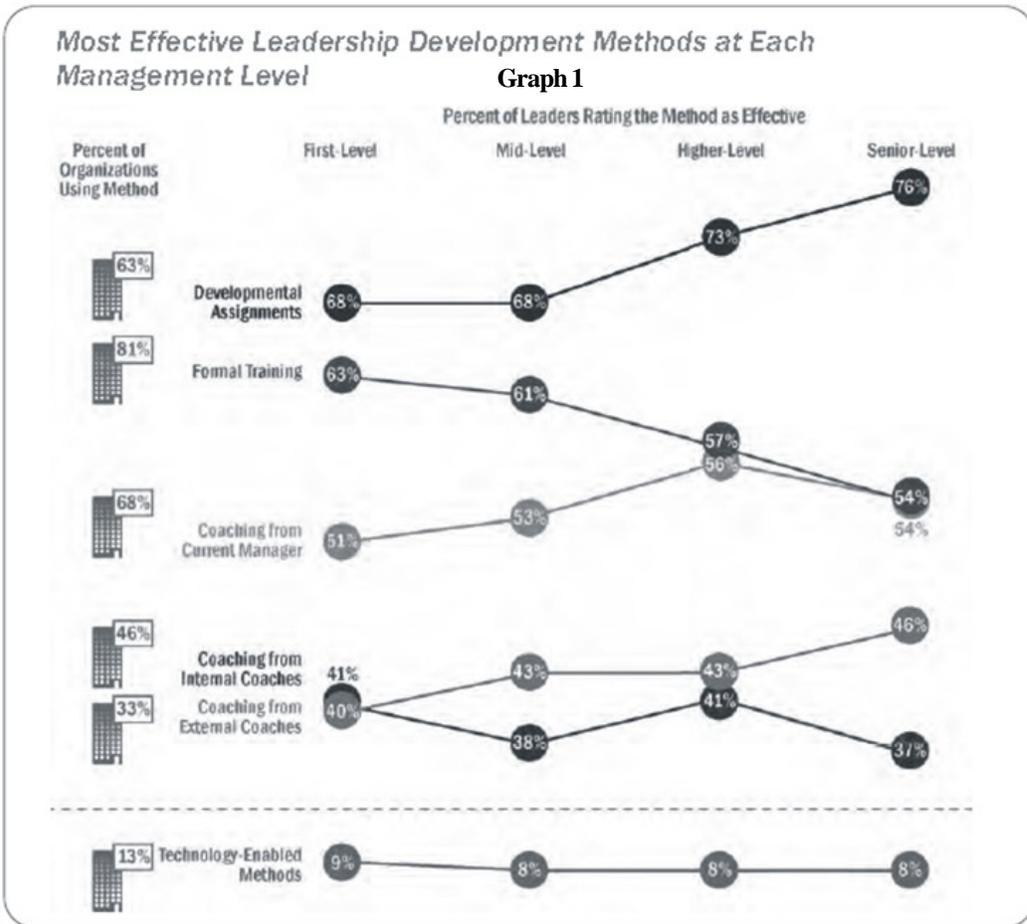**(i)** Not only take advantage of quantity by growing it into leaders who could help in sustaining

(ii) But also build quality who could help in thriving in the global business.

Phase-II : Review of Generational Attributes and Suitability of Leadership Development Methods

The following details provide certain attributes of people of various generations.

Looking at the above, it is evident that, apart from skill differences, the people of various generations are quite different in the way they are, the way they perceive the world and the way they handle their careers.

It is not that organizations are unaware of these obvious differences but many of them still resort to a common calendar of generic programs and expect their

Baby Boomers	Generation X	Generation Y
▪ Have a wealth of knowledge and expertise ▪ Serve as great mentors ▪ Great networkers ▪ Concerned about recognition and salary ▪ May have two to three careers in a lifetime ▪ Were the largest generation (until Gen Y came along)	▪ Self-sufficient ▪ Self-starters ▪ Entrepreneurial ▪ Good at time management ▪ See a task through ▪ Collect a repertoire of skills and experiences that they can take with them ▪ Seek time and balance to raise their children ▪ Want immediate feedback ▪ May have eight or nine careers in a lifetime	▪ Collaborative ▪ Team-minded ▪ Want to be friends with co-workers ▪ Technology and media savvy ▪ Multi-taskers ▪ Want flexibility in scheduling ▪ Integrated and connected ▪ Are the largest generation ▪ May have a double-digit number of careers in a lifetime

employees to derive most. When they start realizing that the benefits are inadequate, the blame game commences. Lack of funding, lack of participation and commitment from senior level officials and top management etc. are the common reasons.

The Global Leadership Forecast Survey 2014-15 titled Ready Now Leaders : Meeting Business Challenges conducted by Development Dimensions International brings out the fact that one size doesn't fit all and that the effectiveness of various methods of leadership development differ with the level of leadership.

From Graph this, it can be seen that the perception of effectiveness of each method of leadership development differs with the stage of leadership in organization.

Leadership development requires active involvement of all the concerned officials from the inception stage. Exclusivity in the process understanding the developmental needs of people of various leadership levels, development of training curriculum/content, delivering methodology etc need to be addressed from the beginning and must be adhered to at each stage.

Phase-III : Discussion on Conflicts caused by generational differences and the need to manage them smoothly

(i) The purpose of the entire discussion is to emphasize the need for successfulleadership at each level and not let the generational differences come in way.

(ii) Most of the Indian Millennials who have reached leadership positions are still in formative years of their careers as compared to their global compatriots.

(iii) Unlike people of gen-x, millennials prefer flexibility and wish to be part of big picture. Managing these two aspects would be the key for eliminating the differences that are caused due to generational differences.

(iv) In Indian organizations, millennials account for about 50% of work force. They are more educated than the previous generations and the methodologies of their education are much different in comparison with the previous generations.

(v) They bring in diversity into the workplace, so much that it increases the possibility conflict. In such situation, it is essential to equip leaders with skills to resolve conflicts on the spot and move on together and build long lasting relationships.

(4.0) Summary & Conclusion :

(i) Due to mass retirement of baby boomer employees, there is a major demographic (generation) shift in the employee population, causing concern to organizations world over.

(ii) Organizations are going to face fierce scarcity of leadership as the available manpower is not adequate to replace the retiring baby boomers.

(iii) In the Indian context, although quantity is not a major issue, quality of leadership is a serious concern.

(iv) India Inc. is not really in a position to meet it's over ambitions / bloated expectations in the current economic trend.

(v) Leadership Development, based on the leadership needs of people of multiple generations, is the safest method to help organizations sustain during this period.

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Bond Valuation : Comparative Study of Traditional and Differential Bond Pricing Methodologies

The traditional bond pricing methodology has been widely used in various studies and also across text books. It gives the discounted value of the bond and gives an investor a clear idea about the value of the bond and therefore an investor can decide about the appropriate interest rates. But at the same time this method is not very intuitive. The differential method on the other hand clearly states the amount of over payment and underpayment on a particular bond. Therefore it gives a clear idea to the investor if he needs to take a fresh position or not. <u>Key Words</u> : Bond, Investor, Valuation, Price, Over payment, Underpayment, Interest.

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Introduction :

The common bond valuation formula is traditionally presented as a straight forward discounted cash flow application. The relationship between price and required yield is generally stated as " as yields rises, bond prices falls; as yields fall, the bond prices rise. The bond prices and yields are in inversely proportion. The present paper emphasizes on traditional bond pricing valuation methodology compared with the modern pricing methodology i.e., differential bond pricing methodology premium and discount conceptual approach. The literature relating to the bond valuation reflects the difficulty wherein the investor may be able to solve for the bond price given a change in interest rates, but may not fully understand the financial dynamics for bond price premium and discount. Further, the differential impact of an increase or decrease in yield to maturity on bond price may be even more unclear. The traditional and differential bond valuation methodologies equation is equivalent to the traditional approach equation.

The yield to maturity is calculated implicitly based on the current market price, the term to maturity of the bond and amount (and frequency) of coupon payments. However, the price and the coupon payments of corporate bond issued newly need to be calculated by required yield. The required yield is dependent on the term structure of interest rates and this need to be discussed before considering how the price of a bond may be determined.

It is not correct to suppose that bonds of similar risk class, which are redeemed on different dates, would have the same required rate of return or yield. In fact, it is clear that the markets needs different yearly returns on bonds with varied time period before their redemption, even if the bonds are of similar risk class. The type of behavior can be defined as term structure of interest rates and it can be depicted simply by the yield curve.

Review of Literature :

In bond valuation various research scholars had done extensive research and the following are the papers were reviewed. This paper has made an attempt to value the secondary market bonds with Traditional methodology and Differential methodology. **Raymond King 1996 :** This paper has been emphasized the option pricing model to evaluate the convertible bonds. The research scholar had used the numeric algorithm to find the theoretical values. The sample has been divided into two model prices i.e., Greater and Less than market prices. The result reveals that without risk adjustment the returns for the subsample identified by the model as undervalued (if the model prices crosses market prices) the subsample identified model are significantly greater than its returns as overvalued. **Frank J. Fabozzi, Steven V. Mann-2012 :** The present paper had focused on traditional approach discount every cash flow with the same discount rate in bond valuations. The relevant yield curve used in valuation and this approach permits opportunities for arbitrage. In this paper bond cash flow has been valued using a unique discount rate that mainly depends on the yield curve shape at the cash flow is delivered in time. **Sheng Fan 2014 :** This paper examined with an endogenous model the firm bond valuation and credit spread for the callable default and pure default corporate bond. The forward rates

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of stochastic instantaneous and the firm value as an infinite dimensional poisson process, they have provides few analytical results for the bond valuations and embedded American options. **Young Ho Eom, Jean Helwege and Jing - Zhi Huang - 2011 :** This paper analyzed the five structural models for the pricing of corporate bonds. The Merton, Geske, Longstaff and Schwartz, Leland and Toft, Collin dufresne and Goldstein models have been tested. The traditional wisdom reflects that the structural models do not generate spreads as high as those observed in the bond market. They have found that with the Merton model spreads are very low. The Leland and Toft model goes opposite way among the models and it over predicts the spreads on most bonds, those with high coupons rate.

  Cho-Hoi Hui, C.F. Chi-Fai Lo-2011: This paper mainly focused on corporate bond valuation model that reflects the default barrier with dynamics depending on variance of the corporate bond and stochastic interest rates function. The bond holder gets an exogenously specified number of riskless bonds when the firm values touches the barrier. The numerical result reveals that the term structures of credit spreads got impacted by the dynamics of the barrier. This model suggested further research scope the modeling credit risk and risky corporate bonds.

  Ali Bora Yigitbasýoglu and Carol Alexander 2008 : The convertible bonds arbitrage free pricing are obtained assuming equity linked, stochastic interest rates and multiple assumptions about recovery and default behavior. The volatility dynamics makes few assumptions that the process of volatility for the stock lies within a band. This paper mainly emphasizes on effects of call notice period. During the notice period increasingly pessimistic values were observed for the issuer substitution of asset, as they introduce more uncertainty. **Golaka C. Nath 2012 :** In financial market bond theory is an integral part. The present paper has been focused on various types of bonds and pricing logic is differ for the different type of bonds. The traditional bond valuation and differential bond valuation approaches were discussed from students understanding point of view. With the help of graphical presentations the concept of duration and convexity and been explained.

  Mortimer, John and Marcis -2006 : This paper mainly discusses and demonstrates the more insightful and simpler one-step method for the calculation of bond discount or premium and underscores how a bond premium or discount arises. This method had failed to give explanation of how premium or discounts of bond arises.

Research Methodology :

(A) Traditional Bond Valuation Methodology :

$$V_{bond} = \sum_{t=1}^{t=n} \frac{Coupon}{(1+y)^n} + \frac{Face\ value}{(1+y)^n}$$

Where,

n= Time to maturity y = Yield to maturity

Coupon rate = Interest rate

Face value = Par value

(B) Differential Bond Valuation Methodology :

$$V_{bond} = Face\ value - \sum_{t=1}^{t=n} \frac{Under\ paid\ coupon}{(1+y)^n}$$

$$V_{bond} = Face\ value + \sum_{t=1}^{t=n} \frac{Over\ paid\ coupon}{(1+y)^n}$$

  Therefore the differential approach for bond valuation can be described as below

$$V_{bond} = Face\ value + \sum_{t=1}^{t=n} \frac{(C-y)*Face\ value}{(1+y)^n}$$

n = time to maturity, y = required yield,

C = coupon (interest) rate

Face Value (= par value)

Scope of The Study :

  The present study had considered 5 companies from Bombay stock exchange listed energy segment bonds. The following are the companies which were considered.

  (i) TATA Power Company, Maturity Tenure : 2019 year.

  (ii) Rural Electrification Corporation limited, Maturity Tenure : 2020 year.

  (iii) Indian Renewable Energy Development Agency Limited, Maturity Tenure : 2027 year.

  (iv) Power Grid Corporation Ltd, Maturity Tenure : 2028 year.

  (v) National Hydro Power Corporation Limited, Maturity Tenure : 2033 year.

Data Analysis :

  The traditional bond methodology and modern bond methodology method i.e., differential bond methodology has been applied to know the under or overvaluation of the bond

	Tata power	REC	IREDA	PGC	NHPC
Face value	1,000,000	1,000,000	1,000,000	1,000,000	1,000
Yield	6.99	7.21	7.5	7.71	6.4
Coupon	7.7	7.13	7.22	7.93	8.67
Maturity	2	3	10	11	16
Traditional bond Methodology	1,012,838.71	1,418,668.17	2,556,618.21	1,015,929.10	1,223.23
Differential Bond Methodology	1,012,838.71	997,908.58	980,780.57	1,015,929.10	1,223.23

. The Tata power debt security has been valued with traditional and differential methodologies and the result stated that it is overvalued. Both the methodologies had given equal valuation (1012838.71).

The REC bond has been valued with the traditional methodology and the result indicated that it is overvalued (1,418,668.17). The differential methodology indicated undervalued (997908.58).

The traditional methodology has been applied on IREDA and the calculated value is greater than the face value (2,556,618.21>1000000). The differential methodology indicated that the calculated value is less than the face value. (980780.57<1000000)

The Power grid corporation bond has been valued under both the methodologies and the result reveals that it is overvalued in both the conditions (1,015,929.10, 1,015,929.10>1,000,000).

The NHPC debt security has been valued by the traditional and differential bond methodologies and the calculated values are greater than the face value (1,223.23, 1,223.23>1000).

Findings :

(1) It has been found that the bond valuation of Tata Power Company limited is seemed to be overvalued in traditional bond methodology and differential bond methodologies (1012838.708>1000000). Hence it is suggested that the bond investor cant take a fresh position in the security for investment.

(2) The traditional bond methodology result found that the REC debt security is overvalued (1,418,668.17 > 1000000). The differential bond methodology result reveals that it is underpriced (997,908.58 < 1000000). Hence the investors are advised to take a fresh position in REC based on the modern bond methodology because it gives efficient result than the traditional valuation method.

(3) The traditional bond methodology result found that the IRED debt security is overvalued (2,556,618.21 > 1000000). The differential bond methodology result reveals that it is underpriced (980,780.57 < 1000000). Hence the investors are advised to take a fresh position in IRED based on the modern bond methodology because it gives efficient result than the traditional valuation method.

(4) It has been found that the bond valuation of Power Grid Corporation and National Hydro Power Corporation are seemed to be overvalued under traditional bond methodology and differential bond methodologies (1,015,929.10 > 1000000 and 1,223.23 > 1000). Hence it is suggested that the bond investor cont take a fresh position in both securities for the investments.

Conclusion of The Study :

The study concludes that the bond market investors should consider the differential bond methodology as it demonstrates more sophisticated valuation technique than the traditional bond valuation methodology. The present study had considered five power sector related industries which have been listed in Bombay stock exchange. The Tata power company ltd., Power Grid corporation and National Hydro power corporation bond securities were overvalued by the traditional and differential pricing methodologies. The REC and IREDA bonds were found to be undervalued by the differential bond methodology in spite of overvalued by the traditional methodology. Hence there is need to do research in debt market segment to know the equity market volatility impact on debt market yield.

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Autonomous Robot

In today's world the field of automated technology has advanced to a very high extent. Robotics is already playing a very pivotal and cutting edge role in diverse sectors such as manufacturing, avionics, medicine, defense, automobile & entertainment to name a few. In this paper, we are dealing with an autonomous robot which has capabilities like speech recognition, color recognition, face recognition, motion tracking & obstacle avoiding while the whole robot is controlled through Bluetooth protocol. The goal of this project is to design a robot that communicates with a computer. We are using a PIC microcontroller which is the heart of the robot. The communication pins of the microcontroller are used to connect to the Bluetooth module which helps in establishing a link between the robot and the computer. A motor driver is also used to aid in the movement of the robot. An ultrasonic distance sensor is used for obstacle avoidance. When a command is given to any servo, the controller sends out a digital signal to rotate the servo to the desired position. An mp3 trigger is used to achieve sound output of the mp3 files stored on the memory card. The robot can also be controlled through a mobile or a tablet. It has an auto navigation system and moves on every possible rough surface. Key Words : Autonomous, Bluetooth protocol, PIC microcontroller, ultra sonic sensor, motor drive, mp3 trigger.

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Introduction :

Science changes its face every day in order to reach the heights of human possibilities. Robotics is one of such realm of the extravagant innovations created by human mind. In this unpredictable and naive world, robotics can be used for security purposes. This paper describes about the use of robotics for security purposes such as diffusing bombs. The robot is completely autonomous with several features such as color recognition, face recognition, voice recognition, obstacle avoiding, QR code, recognition, GPS navigation, etc.

In the paper[1], the robot designed is basically a mobile device which carries out different services and can be used in two different ways. The robot in this paper can either be controlled manually i.e., through a device which gives commands to it, or automatically which means the robot carries out all the services automatically.

In the paper [2], the robot is designed to operated manually or autonomously both at a time and the robot performs the tasks for the well-being and this type of robot is either mobile or manipulative or both.

In the paper [3], all the components of the robot are integrated on a mobile robot platform and the robot is used to interact with the humans in a kitchen scenario.

Proposed Work :

Nowadays, the field of technology especially the automated technology is advancing day by day. People prefer things such as machines, and other objects to be automated such that it decreases the amount of work to be done and perhaps makes it much easier in this automation process. The tasks performed by the automated machines are much faster as compared to that of humans. We have created an autonomous robot which interacts with the outside world and follows the instructions given by us such as lifting a water bottle or moving to a specific distance and talk back ability, the robot also recognizes the face and even differentiates between colors with help of a wireless camera attached to it. This robot is very helpful in today's world as it has the ability to ride on any rough surface enabling it to enter into remote areas were a lot of people cannot enter or can be used to diffuse the bombs while standing at a particular distance without causing any harm to us.

Instruments :

The following components are used in this system :

(I) Microcontroller : The heart of the robot is PIC18lf4685 which has ahigh computational performance at an economical price, high-endurance and Enhanced Flash program memory. PIC18LF4685 is a microcontroller which

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has a logical choice for manyhigh-performances, power sensitive applications.

(II) Bluetooth Module : Bluetooth is a wireless technology in which the data can be transferred over short distances through radio transmissions. This wireless technology is used mainly in mobile's which has a greater security level as compared to any other wireless technology.
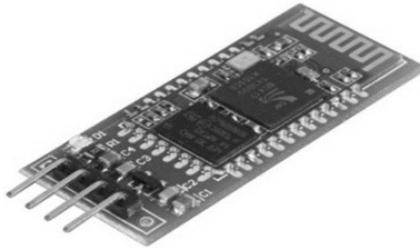

Fig.1 : Bluetooth Module

Fig.1 shows the Bluetooth Module whichis used in the robot which operates at a frequency of 2.45 GHz. the transfer rate of this Bluetooth module is 712kbps. The robot is controlled with the help of this Bluetooth module which receives the information from the transmitter and then forwards it to the microcontroller to perform a particular task assigned to it. The Bluetooth module requires a small amount of power supply and is tiny and inexpensive.

(III) Ultrasonic Distance Sensor :

Fig.2 : Ultrasonic Distance Sensor

Fig2. Shows an ultrasonic distance sensor which works on the principle similar to that of a radar or sonar which calculates the distance and the type of the object which is placed in front of it using the echo in the form of radio or sound waves. This device is also knows as a transceiver when it transmits and receives the data and even works as a transducer.These ultrasonic distance sensors generate very high frequencies which calculate the echo which is received after reflecting back from the object.

(IV) Mp3 Trigger :

The mp3 trigger is a PCB board which integrates the mp3 files in an easier way.
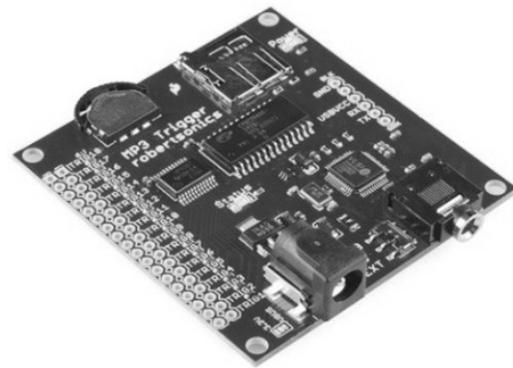
Fig.3 : Mp3 Trigger

Fig.3 shows the Mp3 trigger which is used in the robot consisting of 18 external trigger pins which when triggered plays a particular mp3 file assigned to that pin. The Mp2 trigger has a real time volume control which enables the user to control the volume of the mp3 sound at any instance of time. The formats in which the mp3 files are stored in the SD card are in fat32.

(V) Motor Driver :

The current provided to the DC motors by the microcontroller isn't enough to operate it and even the speed and direction of the DC motor isn't easy to be controlled. So, we use a motor driver which can control the speed of the motor using PWM i.e., Pulse Width Modulation and the direction of theDC motors can be controlled by the use of 4 consecutive keys.

Fig.4 : L298N Motor Driver

Fig.4 shows the motor driver which is used in the robot to control the two DC motors in the same direction or in the opposite direction as per the requirement.

(VI) Servos :

A servo motor can be an ac, dc or brushless DC motor which is equipped with a positioning device similar to that of a digital decoder. A basic servo consists of a DC motor with a gear train along with a potentiometer providing position feedback and a small circuit used to control the position. Limit stops are also used in the servo which limits the shaft to turn beyond it.
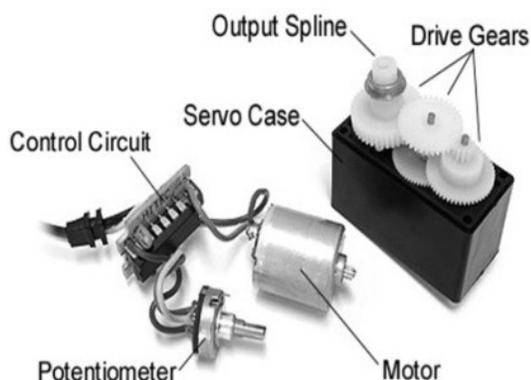
Fig.5 : Servo

Fig.5 shows the type of servo used in the robot to control the arm movements, wrist movements, head movements and the elbow movements of the robot.

Applications :

Differentiates between colors.Tracks the face of a specific person.Follow voice command. Has an ultrasonic sensor which prevents it to crash into the obstacle.

Conclusions :

In today's world where the automated field has a lot of demand for this type of robots in order to employed them in manufacturing or in other processes, this robots are very useful as the chance of an error will be very less and the time span of a particular work process can be decreased by automation the machines or using these types of robots instead of humans and using this robots in hazardous situations such as fire accidents or in radioactive places where it is very difficult for a human to survive makes it a lot easier for us to carry out the tasks at a safer distance by controlling these robots wirelessly.

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Child Labour : With Special Reference to Chidren Working in Almirah Factories of Andhra Pradesh

The paramount duty of the state, parents and citizens to provide avenues and opportunities to every child that he or she has a right to receive the education, which enables him / her. While child labour is a complex problem that is basically rooted in poverty, there is non-favouring commitment by the Government and the people of India to combat it. Success can be achieved only through social engineering on a major scale combined with national economic growth. International policies and actions therefore, must support and not hamper India's efforts to get rid of this child labour.

Dr. D. Babu

Introduction :

The first Act in India relating to child labour was the enactment of children (Pledging of labour) Act of February 1933. Since then there have been 9 different Indian legislations relating to child labour. The strategy of progressive elimination of child labour underscores India's legislative intent, and takes cognizance of the fact that the child labour is not an isolated phenomenon that can be tackled without simultaneously taking into account the socio-economic milieu, which is at the root of the problem.

The Government of India is determined to eradicate child labour in the country the world's largest child labour elimination program is being implemented at the gross roots level in India, with primary education targeted for nearly 250 million in this a large number of non governmental and voluntary organizations are involved. Special investigation cells have been setup in states to enforce existing laws banning employment of children in Hazardous industries. The allocation of the Government of India for the elimination of child labour was $ 10 million in 1995-96 and $16 million in 1996-97. The allocation for the current year is $ 21 million.

Causes of Child Labour :

There are many causes of child labour. Some of the principle causes are :

(**a**) Poverty (**b**) Illiteracy and ignorance of parents
(**c**) Large family size (**d**) Child labour is cheap commodity
(**e**) Absence of scheme for family allowance and other reasons.

Meaning of Child Labour :

Child labour has been differently defined in various studies. According to the committee on child Labour, "Child Labour",however, can broadly be defined as that segment of the child population which participates in work either paid or unpaid." In their study of working children in Bombay, Singh et.al, have held the view: "Child labour means a working child who is between 6 and 15 years of age and is not attending school during the day, is working under an employer or is learning some trade as an apprentice".

Types of Child Labour :

While the social concern is genuine and widespread, the wide cleavage between intentions and reality calls for a deep understanding of the interrelated processes of economic, social and political development, Children's activities are after all, determined and often these are consequences of these realities. "Rodgers and Standing" divided children's activities into different categories.

(**i**) Domestic non-monetary work is usually within the family. It is self employment and is generally time intensive (example: cleaning, cooking washing, child care etc.)

(**ii**) Non-Monetary and non-Domestic work: work-which is usually found in the poor agrarian /rural economics. This self employment is a part of family activity and includes activities like tending of live-stock, protecting crops from birds and animals, hunting, gathering and weeding. This work is also time intensive and is often inter-mixed with domestic work.

Methodology :

The Rayalaseema districts of Andhra Pradesh in general are considered as backward and poor both educationally, economically and socially. As a result, majority of its population would be classified as poor hence this study is in observance about put the poor children and the cause

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they joined the factories or the agricultural sector. In view of this, it is proposed to undertake this

"Dissertation Work on The Study of Child Labour with Special Refference to Children Working in Almirah Factories of Cuddaph District In Andhra Pradesh".

Objectives of The Study :

The overall objective of the present study is to observe the rural poor children, their socio-economic conditions in the Kadapa District of Andhra Pradesh.

The specific objectives of the study have been given below :

(1) To study the scope and the extent of the functioning of different agencies to uplift the poor children working in the Almirah factories in Kadapa District of Andhra Pradesh.

(2) To Study the socio-economic profile of the child labours.

(3) To examine the critical points of the functioning of the government in eradicating the child labour in this district.

(4) To assess the various categories of the children emerging from different castes and creed, sections of the societies of this district.

(5) To suggest measures for improving the life standards of the children of this area.

Child Labour Legislation and Acts in Pre-independent, Post-independent and Sovereign -Republic India :

Child labour is regulated in all countries in order to protect the rights of children. The constitution of India prohibits employment of children under 14 years in "hazardous" occupations (Article 24) and provides that the state shall direct its policy towards securing that the tender age of children is not abused and that the citizens are not forced by economic necessity, to enter avocations not suited to their age and strength" and that childhood and youth are protected against exploitation and moral material abandonment - Article 39 (e) and 39 (f).

Child labour in the Almirah Factories of the Kadapa district:

Kadapa is a Revenue District in Rayalaseema Region of Andhra Pradesh. The district was originally part of Anantapur District under Madras Presidency in 1800AD. The District of Kadapa Lies between 13° 43" and 15° 14" of the northern latitude and 77° 45" and 79° 29" of eastern latitude (Kadapa district hand book-1961). Kadapa is Geographically placed among the districts of Anantapur, Kurnool, Chittoor, Prakasam and Nellore districts, covering an area of 15,359 sq. kilometers. There are 52 mandals having 778 revenue villages in this Kadapa District.

It is said that children below the age of fifteen of the migrated house holds are mostly engaged in Almirah factories as workers. The child worker's background reveals that they belong to socially and economically deprived sections of the society, particularly scheduled caste, scheduled tribes and backward classes and Muslim communities. While affluent families are settled in business and other jobs, working class families are engaged in different types of works in urban informal sector- construction of houses, hamali,

rickshaw pulling and self employment in productive and service activities such as Almirah factories.

The Universe :

Kadapa district covers 51 mandals out of a total population of nearly a 22, 81,299, out of which 34.56% of population are under the poor line (BPL Survey). Over the study of child labour has been covered, the more children are from 30 mandals. Under this, the very needy children are identified as 492 members for that period (total covered subjects are 1250).

Sample :

A sample of 492 has been identified as the detail of study following the method of stratified random sampling. For the purpose of stratification, the child labours of Kadapa district, working in Almirah factories are classified in the groups specified, depending on random sampling methods, obtained by classifying the children according to their age, their educational qualifications, financial background, family status, economic conditions of the irrespective families for bringing up them and so on. Our sampling comprises of 492 children was well justified for this cause by representing all the categories.

Tools of Data Collection :

Data was collected from primary and secondary sources. The selected children formed the source data. A schedule covering questions on the identification of family particulars, economic particulars, income particulars, development awareness, program participation particulars and particulars on the problems of the child workers were considered for the conduction of viva voce. For collection of secondary data, to be kept supportive for the viva and other interviews conducted was taken from various agencies like District Rural Development Agency, Kadapa and all the Mandal Praja Parishadh offices, juvenile homes, etc. The researcher conducted interviews and discussions with the officials at village panchayats and development officials of this district level for obtaining data in depth.

Data Processing :

The data was processed manually and also by using Desktop PCs for the preparation of the master chart. Suitable tables were drawn from the master chart. Analysis was made with the help of simple statistical techniques like percentages and averages.

Limitations of The Study :

The random sample taking method itself may have lost some vital subjects. This social problem is of nationally and internationally spread one and hence sampling from a very limited area may not give results for the implementation of the research work to the whole world of child labours. This may change from the Administration from the Govt. in power to that of the voices of the opposition. There may be other factors also like financial implications of the researcher and the correctness of the data obtained from the govt. agencies.

Conclusion :

The day will come when nations will be judged not by

their military or economic strength, not by the splendours of their capital cities and public buildings, but by the well-being of their people; by the levels of health, nutrition and education; by the opportunities to earn a fair reward for their labour; by their abilities to participate in the decisions that affect their lives; by the respect that is shown for the civil and political liberties; by the provision that is made for those who are vulnerable and disadvantaged; and by the protection that is afforded to the growing minds and bodies of their children.

Thus, it is the paramount duty of the state, parents and citizens to provide avenues and opportunities to every child that he or she has a right to receive the education, which enables him / her. While child labour is a complex problem that is basically rooted in poverty, there is non-favouring commitment by the Government and the people of India to combat it. Success can be achieved only through social engineering on a major scale combined with national economic growth. International policies and actions therefore, must support and not hamper India's efforts to get rid of this child labour.

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