Gabor Filter: Gabor channels for the most part called as Gabor wavelets or pieces are complex band pass channels. They have shape like the state of the cells of the visual cortex of mammalian brains. These are utilized as a part of numerous applications for example, extraction of multi resolution, spatially neighborhood elements of a kept recurrence band. Another critical component of the Gabor channels is that they go about as an effective device for facial component extraction and powerful face acknowledgment. By and large the group of 2D Gabor channels can be characterized in the spatial area in the following way:

$$\Psi_{U,V}(a,b) = \frac{f_u^2}{\pi k \eta} e^{-\left(\left(\frac{f_u^2}{k^2}\right)a_1^2 + \left(\frac{f_u^2}{\eta^2}\right)b_1^2\right)} e^{i2\pi f_u a_1} \quad (1)$$

where

$a_1 = a\cos\theta_v + b\sin\Theta_v, b_1 = -a\sin\theta_v + b\cos\theta_v,$

$f_u = f_{max}/2^{(u/2)}$ and $\eta = v\prod/8$

Each Gabor channel speaks to a Gaussian portion capacity regulated by complex plane wave whose middle recurrence what's more, introduction are given by f_u and θ_v, individually. The parameter k and η focus the proportion between focus recurrence and size of Gaussian envelope. In spite of the fact that we can have distinctive qualities for aforementioned parameters deciding attributes of the channels, the most common parameters utilized for face acknowledgment are $\kappa = \eta = \sqrt{2}$ and $f_{max} = 0.25$. At the point when utilizing Gabor channels for facial highlight extraction, scientists ordinarily develop a channel bank highlighting channel of five scale and eight introduction (contained 40 channels as demonstrated in Figure 2 a), that is $u = 0,1\ldots...p$-1 and $v = 0,1\ldots,r$-1, where $p = 5$.
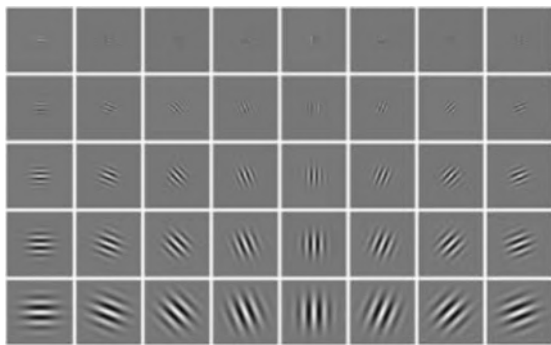

Figure 2*a*. The real parts of the Gabor filter bank commonly used for feature extraction in the field of face recognition.

Prnicipal Component Analysis: Extraction of components from the pictures is the first venture in face acknowledgment. PCA is a standard procedure utilized for highlight extraction. The picture as *A* x *A* grid can be communicated as a point in the space *A* x *A* measurements. The objective of PCA is to locate the obliged vectors that can speak to the picture data and structure

another space. PCA steps are as per the following:

1. Let $t_1, t_2\ldots.t_n$ be the face pictures of the preparation set.
2. Average face of the set is given by

$$\Psi = \frac{1}{p}\sum_{r=1}^{p} t_r.$$

3. We figure the separation of the considerable number of appearances from the normal $\Phi = \Gamma_i$-Ψ
4. Eigen qualities and Eigen vectors are figured from the covariance grid and after that we figure the face parts from the new face picture by operation:

$$C = \frac{1}{p}[\sum_{r=1}^{p} \Phi_r \Phi_r^T] \quad (2)$$

5. Weights are ascertained utilizing expression given underneath (4) and afterward we shape a vector $\Omega = \omega_1, \omega_2\ldots \omega_p$ which will speak to the relating weights of each eigen vector in the representation of pi

$$\omega_k = \mu_k^t (\Gamma-\Psi), k = 1,2\ldots.p \quad (3)$$

where μ_k is the eigen vector.

Principal Component Analysis of Gabor Filter: Initially we have to apply Gabor channel to the crude pictures to produce Gabor channel reaction and afterward these Gabor channel reaction go about as info to the PCA. The entire procedure till presently is demonstrated in Figure 2*b*. Gabor channel gives strength against changing differentiation and brilliance. It can likewise speak to normal for neighborhood face region.
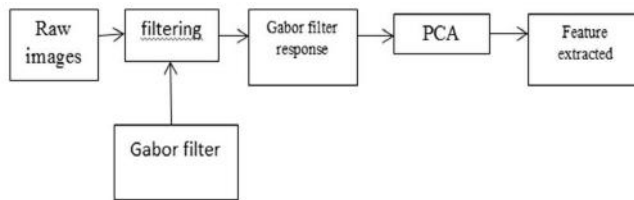

Figure 2*b*. Features extraction.

Let $D(a, b)$ be a dim scale picture of size *m* x *n* pixels furthermore, let $\Psi_{U,V}(a,b)$ indicate a Gabor filter given by its middle frequency fu and orientation θ_v. The filtering operation of the given face picture $D(a, b)$ can be:

$$M_{U,V}(a,b) = D_{U,V}(a,b) * \Psi_{U,V}(a,b) \quad (4)$$

where $M_{U,V}(a,b)$ denotes the Gabor filter response and it splits into real $(E_{U,V}(a,b))$ and imaginary part $(O_{U,V}(a,b))$

$$E_{U,V}(a,b) = Re[M_{U,V}(a,b)] \quad (5)$$

$$O_{U,V}(a,b) = Im[M_{U,V}(a,b)]$$

II. PREVIOUS WORK

We experimentally work over facial representation based on Local Binary Pattern (LBP) for individual free outward appearance acknowledgment. LBP components were proposed initially for texture analysis and as of late have been presented to speak to faces in facial pictures examination. The most critical properties of LBP elements are their resilience against light changes and their computational straightforwardness. We analyzed it on machine learning system, Support Vector Machine (SVM).

Local Binary Pattern (LBP): The first LBP administrator was presented by Ojala. Furthermore, was demonstrated an effective method for surface depiction. The administrator marks the pixels of a picture by thresholding a 3 * 3 area of every pixel with the inside worth and considering the results as a paired number (see Figure. 3 for an outline), and the 256-container histogram of the LBP names registered more than a district is utilized as a surface descriptor. The inferred double numbers (called Local Twofold Patterns or LBP codes) systematize nearby primitives including distinctive sorts of bended edges, spots, level territories, and so on (as indicated in Figure 3), so each LBP code can be viewed as a smaller scale text.
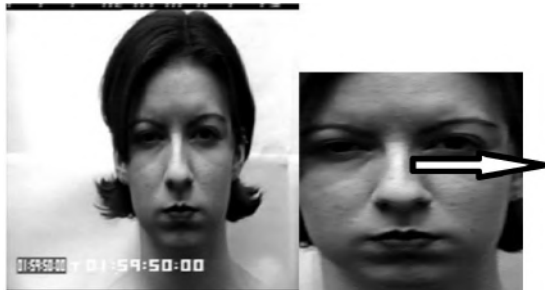

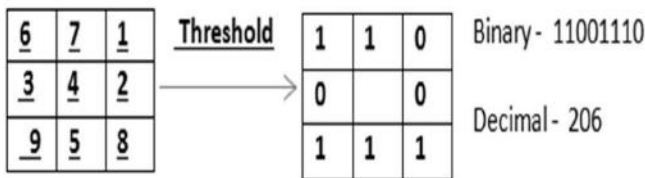
Figure 3.The original face image and the cropped image.

Figure 4. The original LBP operator.

Support Vector Machine (SVM): We embraced SVM as option classifiers for expression acknowledgment. As an effective machine learning method for information characterization, SVM performs an understood mapping of information into a higher (perhaps boundless) dimensional element space, and after that discovers a straight isolating hyperplane with the maximal edge to isolated information in this higher dimensional space. Given preparation set of named illustrations $\{(x_i, y_i), i= 1,......l\}$ where $x_i \in R^n$ and $y_i \in \{1, -1\}$, another test illustration x is arranged by the following function :

$$F(x) = sgn(\sum_{i=1}^{t} \alpha_i \ y_i k(x_i, x) + b) \qquad (6)$$

where, are Lagrange multipliers of a double streamlining issue that depict the isolating hyperplane, $k(. .)$ is a kernel function, furthermore, b is the threshold parameter of the hyperplane. The preparation test x_i with $a_i > 0$ is called bolster vector, and SVM finds the hyperplane that amplifies the separation between the bolster vectors also, the hyperplane. Given a non-straight mapping U that installs the data information into the high dimensional space, pieces have the type

$$k(x_i, y_j) = \{ \varphi(x)_i, \varphi(y_j) \}.$$

A special property of SVM is that it simultaneously minimizes the empirical classification error and maximizes the geometric margin. Therefore, it is also known as maximum margin classifiers.

Viewing the input data as two sets of vectors in an *n*-dimensional space, a SVM will construct a separating hyperplane in that space maximizing the margin between the two data sets. Training a SVM consists of finding the optimal hyperplane, that is, the one with the maximum distance from the nearest training patterns, called supportvectors. SVM optimal hyperplane is the one with the maximum distance from the nearest training patterns. The support vectors (solid dots) are those nearest patterns, a distance b from the hyperplane.

Proposed Work: BBO is used for face recognition. Previously SVM using LBP is used for facial expression recognition. We further proposed BBO with SVM to recognize face and then facial expression of the image. The block diagram of the proposed method is Figure 6.
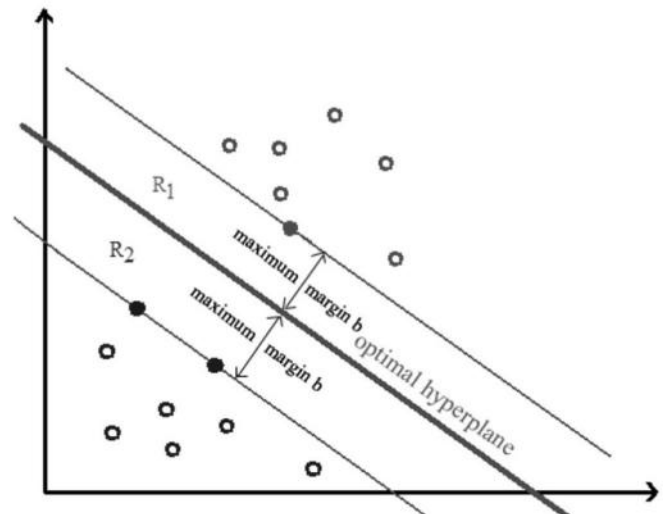

Figure 5. SVM Optimal Hyperplane.

III. BIOGEOGRAPHY BASED OPTIMIZATION

Biogeography is the investigation of geological dissemination of natural organic entities. It expects to figure out how
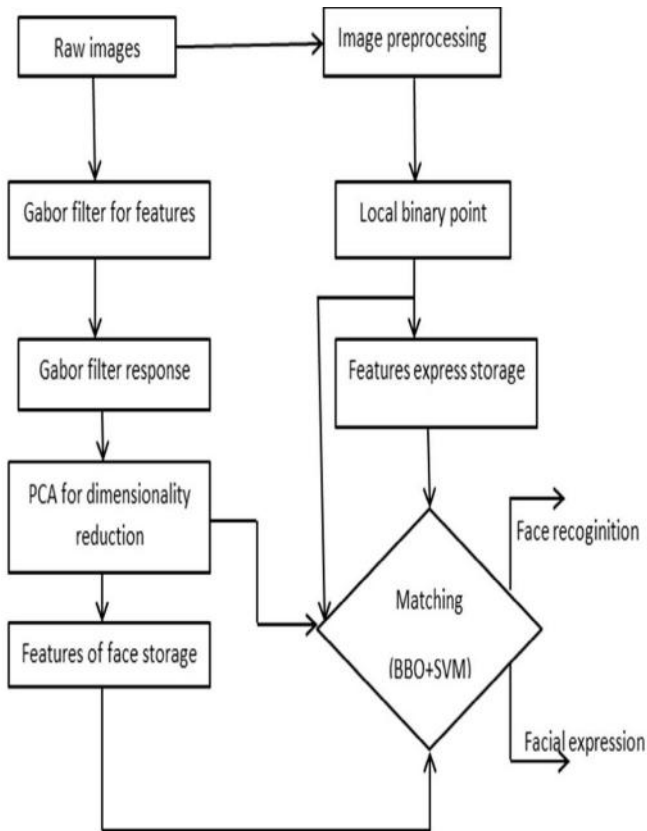
Figure 6. Block diagram of BBO with SVM technique.

species relocate starting with one island then onto the next. Biogeography is communicated as far as different components, for example, territory range, movement rate, displacement rate, environment suitability file (HSI) and suitability file variables (SIV). Every person is considered as a "Natural surroundings" with a territory suitability list of quantify person. Suitability record variables (SIV) are those variables of a person by which we can describe tenability.

Suitability Index Variable (SIV): The environment speaks to a conceivable arrangement (ideal elements). The environment includes of a few Suitability Index Variable (SIVs). Highlights removed from each and every picture speak to a SIV.

Habitat suitability index variable :Every natural surroundings is assessed on the premise of habitat suitability index variable (HSI). Living space Suitability Index can be considered as a quality return by the wellness capacity. A Natural surroundings is viewed as rich in components on the off chance that its HSI quality is closer to the perfect natural surroundings HSI quality and on the off chance that its esteem is far from the perfect HSI esteem then the environment is considered as a poor environment containing less elements. In view of the HSI esteem we can simply recognize great arrangement and the awful ones. With a specific end goal to enhance the terrible arrangements we can relocate certain arrangement of

chose components from the perfect answer for awful ones. We have utilized standard mean as the wellness capacity of the methodology. Subsequent to adding to the preparing model we utilize Euclidean separation to figure the coordinating score between the elements of test picture and that of preparing model test picture and that of preparing model.

Distance Calculation: After improvement of train model from the preparation set pictures, we ascertain the similitude lattice utilizing the lattice which contains the components separated from test set of pictures. The separation used to figure the similitude framework is 'Euclidean'. Euclidean separation is the straight line distance between two focuses introduce in a dimensional space. For instance, the Euclidean separation between any two focuses x_i and y_j in *N*-dimensional space is

$$D = \sqrt{\sum_{i=1}^{N}(x_i - y_i)^2}$$

Extricate the components from the preparation set and test set in frameworks as indicated in Figure 2 utilizing Gabor channel and PCA. Let's say "train_data" is a framework contains highlight extricated from preparing set and "test_data" contains components separated from test set.
1) Compute the HSI value for the whole train data using fitness function. It will be treated as ideal HIS
2) Apply BBO for 120 (number of SIVs) cycles and in every cycle do the accompanying
• Compute HSI esteem for the SIV (or segment) of the picture exhibit in test_data lattice.
• Contrast the calculated HSI esteem and perfect HSI.
• In the event that ascertained HSI quality is near to perfect HSI do nothing.Go to next cycle.
• On the off chance that figured HSI is not near to perfect HSI at that point perform relocation to progress test_data.
3) Compute likeness framework from train_data and test_data utilizing Euclidean separation and plot the obliged bend.

Figure 7.Algorithms of BBO methodologies.

TABLE -1 CONFUSION TABLE OF 7-CLASS FACIAL EXPRESSION RECOGNITION USING BBO WITH SVM

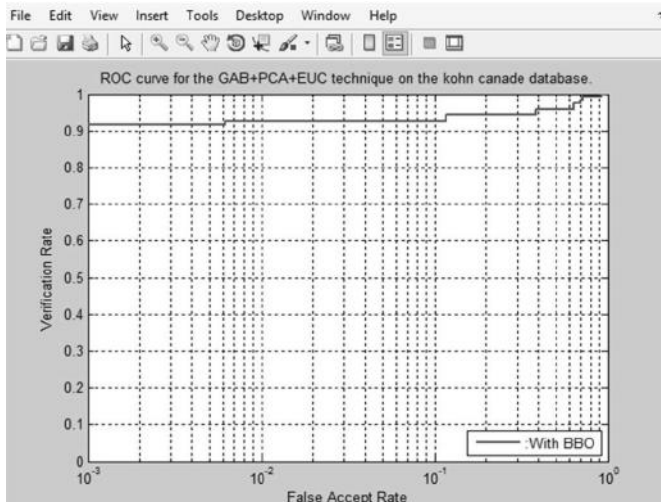|	Anger (%)	Disgust (%)	Joy (%)	Fear (%)	Sadness (%)	Surprise (%)	Neutral (%)
anger	93.0	5.4	0	0	6.8	0	11.5
disgust	0	99.3	1.2	5.6	0	0	0
joy	2.1	5.0	98.7	1.3	2.0	0.8	10.0
fear	0	0	35.5	85.6	3.3	0.4	6.5
sadness	15.6	0.8	0	0	97.5	6.8	24.6
surprise	1.0	0	2.7	2.9	0	99.2	1.2
neutral	2.8	1.5	0	0	11.0	1.5	99.0

Figure 8. ROC curve for BBO with SVM technique.

IV. CONCLUSION

In this paper, we propose an efficient algorithm of biogeography-based optimization with support vector machine using LBP. The proposed algorithm tries to find out the better performance. The performance is evaluated using the standard Cohn Kanade face database. Table 1 shows better verification than the normal facial expression recognition using LBP with SVM.

V. REFERENCES

[1]. RabiaJafri and Hamid R. Arabnia, "A Survey of Face Recognition Techniques," *Journal of Information Processing Systems*, Volume 5, No.2, June 2009.

[2]. M. Turk and A. Pentland, "Eigen Faces for Recognition",*Journal of Cognitive Neuroscienc*, Volume3, 1991, pp. 72-86.

[3]. D Murugan, Dr. S Arumugam, K Raja Lakshmi and Manish T I"Performance Evaluation of face recognition using Gabor filter, log Gabor filter and discrete wavelet transform*"*, *InternationlJournal of Computer Science and Information Technology*, Volume 2, No.1, February 2010.

[4]. Vitomirtruc and Nikola Paveic, "The Complete Gabor-Fisher classifier for robust face recognition," *EURASIP Journal on Advances in Signal Processing,*2010.

[5]. V. Truc, B. Vesnicer and N. Paveic, "The Phase-Based Gabor Fisher classifier and its application to Face Recognition Under Varying Illumination Conditions," *Proc. 2nd International Conference on Signal Processing and Communication Systems*, pp. 1-6, Gold Coast, Australia, December 2008.

[6]. C. Liu and H. Wechsler, "Gabor Feature Based Classification Usingthe Enhanced Fisher Linear Discriminant Model for Face Recognition",*IEEE Trans.Image Processing*, Volume11, No. 4, 2002, pp. 467-476.

[7]. L. Shen and L. Bai, "A Review of Gabor Wavelets for Face Recognition", *Pattern Analysis and Applications,*Volume 9, no.2,pp.273-292,2006.

[8]. L. Shen,L.Bai, and M. fairhurst, "Gabor Wavelets and General Discriminant Analysis for Face Identification and Verification", *Image and Vision Computing*, Volume 25, No. 5, 2007, pp. 553-563.

[9]. Vitomirtruc and Nikola Paveic, "Gabor-Based Kernel Partial Least Squares Discrimination Features for Face Recognition", *Informatics*, Volume 20, No.1,2009, pp.115-138.

[10]. Er. Navdeep Kaur Johal, Er. Poonam Gupta and Er.Amanpreet Kaur, "Face Recognition Using Biogeography Based Optimization", *International Journal of Computer Science and Information Security*, Volume 9, No.5, May2011.

[11]. D. Simon, "Biogeography–based optimization", *IEEE Transactions on Evolutionary Computation*, Volume 12, No. 6, 2008, pp. 702-713,

[12]. T. Ojala, M. Pietikäinen and D. Harwood, A comparative study of texture measures with classification based on featured distribution, *Pattern Recognition*, Volume 29, No. 1, 1996, pp. 51–59.

[13]. T. Ojala, M. Pietikäinen and T. Mäenpää, Multiresolution Gray-Scale and Rotation Invariant Texture Classification with Local Binary Patterns, *IEEE Trans. Pattern Analysis and Machine Intelligence, Volume* 24, No. 7, 2002, pp. 971–987.

[14]. C. Shan, S. Gong and P.W. McOwan, Robust Facial Expression Recognition Using Local Binary Patterns, *Proc. IEEE International Conference on Image Processing*, Genoa, Volume 2, 2005, pp. 370–373.

[15]. Y. Tian, T. Kanade and J. Cohn, Recognizing Action Units for Facial Expression Analysis, *IEEE Trans. Pattern Analysis and Machine Intelligence*, Volume 23, No. 2, 2001, pp. 97–115.

Pooja Jadon received her bachelor's degree in electronics and communication from Northern India Engineering College, IP University, in 2012 and completed M.Tech. from Ambedkar Institute of Advanced Communication Technologies and Research, Delhi in 2015. She has abiding passion for teaching and research.

Job Hopping Trend in Academics with Reference to Bareilly City

Dr. Nadeem Fatima[1] and **Anubhuti Saxena**[2]

Lal Bahadur Shastri College of Higher Education, Civil Lines, Bareilly, Uttar Pradesh 243001 India

[1]nadeem.fatima@gmail.com, [2]anubhuti.jhingran88@gmail.com

Abstract : **The most serious issue for the employers today is hiring and retaining the capable workforce. Job hopping has turned out to be a more common phenomenon. Job hopping refers to the pattern of changing jobs very frequently as a means of quick financial gain or career advancement. It is most prevalent in India, due to rapid growth. Until recently job hopping was well thought-out as a career suicide and conveyed to future employers that you weren't serious, but now the mindset is changing. Employees and employers both consider it beneficial if it is done to gain new insights in different environments and cultures.**

This paper investigates the relationship between pay satisfaction and turnover intention as well as between job satisfaction and turnover intention amongst the teaching professionals of MBA colleges in Bareilly. The questionnaire was administered to 100 academic professionals, 74 replied making the response rate to be 74%. The findings suggest that there is negative relationship between turnover intention with job satisfaction and pay satisfaction. It was observed that employees within the age group (20-30) have greater intention to quit the job.

Key words- Turnover Intentions, Job Hopping Behavior, Employee Satisfaction, Compensation, Retention

I. INTRODUCTION

GLOBAL competition highlights the importance of loyalty towards company for the long term organizational success, but this idea is becoming weaker day by day. Employees these days keep themselves thoroughly updated about the opportunities in the market and quickly grab the one that suits them more. This prototype of frequently changing job within a short span is referred as job hopping.

Turnover intention- Turnover intention is described as the cognitive process of thinking, planning, and desiring to leave a job *i.e.* it is the probability of leaving the job. This occurs before the employee actually quits the job. Employee turnover is inevitable.

The employer must be aware of the turnover intentions of his employees so that he can formulate various strategies to stop them from leaving. As soon as the employee leaves the job, the employer must do feedback analysis and based upon that come with innovative ideas to prevent further movement.

Employee turnover is a continual problem, when good employees leave it becomes imperative for the organization to come up with some strategy to check other employees for their opinions and attitude towards their work. Intent to leave, is even more unfortunate for the organizations, as it ends the affective commitment of the employees which in turn undermines the efficiency and productivity of the organization. Moreover, in some occasions, it threats the organization's long term survival.

The actual cause of employee turnover is not always opportunities in the market, sometimes it occurs as a result of unhealthy work-environment and practices. Employee turnover is not only an alarm to the human resource department but also to the organization because of its negative impact on the working of the organization. Turnover intention is the most excellent forecaster of actual turnover.

Job Satisfaction-Job satisfaction is described as the positive attitude and emotion towards one's job and work environment. According to a recent study job satisfaction is one of the main reasons for employees moving jobs in the engineering, IT, financial services, FMCG and pharmaceuticals sectors. About 15-20 per cent of the candidates switched jobs to get exposure to a new area of work, global workforce solutions firm Kelly Services India's `Understanding the mind of an employee' report said.

Job dissatisfaction is not only one of the main reasons teachers quit teaching but the anticipation of it has discouraged others from joining the profession. Satisfied employees have shown to be more contributing and serious for their job. According to the research it has been observed that heavy workload, poor remuneration and inappropriate other benefits, discipline problems among students, poor communication channel in the organization and the absence of teacher involvement in decision-making, are a few of the reasons teachers are displeased and leave their job.

Compensation

According to global workforce solutions firm Kelly Services India's `Understanding the mind of an employee' report - About 70 per cent of the surveyed employees said that compensation is the reason for changing jobs in the engineering sector. Compensation is becoming the major reason why an employee leaves a job. Unfortunately, in an economy like of India, it's not realistic to expect a significant pay rise if you stay at the same position at your company. According to a national salary survey by AON Hewitt, the average salary increase in 2012 was 2.9 percent.

The characteristics of the job-hopper plays important role in explaining the amount of pay growth for the remaining managers. It has been observed that firms elevate pay more uncompromisingly for the present executives when they lose their top executives to other firms.

When a firm loses executives to industry competitors, to nearby companies, to companies that offer higher compensation, it makes the current employer more alert on revising the pay scale. The extent of the above mentioned factors reflects the intensity of competition for managerial talents in the labor market. According to research in academics, teachers look for better salary structure which includes benefits, performance based incentives, leave encashment, medical allowance and other allowances apart from cash compensation. They look for more lucrative options in the prevailing industry and if they find the suitable one, they make a switch. Employees want that determination of salary hike should be a fair process, pay policy must be consistent for everybody and adequate information should be provided related to pay issues in the company.

When does job-hopping become bad for career?

It depends on what's typical for the industry and one's career stage. The reason behind changing also matters. Changing jobs for growth opportunities is much more acceptable than changing just because one wants more money.

III. LITERATURE REVIEW

The problem of job hopping has been researched a lot many times by a number of researchers in diverse fields but very few attempts have been made to understand the trend in academics.

Kaplan (1966) and Arts, Evans, Klein, and Delgado (1992) pointed out on the working condition of the music schools throughout the United States. They studied about administrative and academic issues and also the compensation and benefits of the music teachers at that time. The teachers were paid by hours and improvements were recommended after their studies to implement full time pay and also add in fringe benefits for them.

Bruce Fallick *et al.* (2006) in the paper titled "*Job-Hopping in Silicon Valley: Some Evidence Concerning the Micro Foundation of A High-Technology Cluster*" made analysis on the mobility of employees at work place. The authors argued that job hopping is important in computer clusters because it facilitates the reallocation of talent and resources toward firms with superior innovations. Further, the paper provided the findings which include that job hopping between the companies; however, also increase the likelihood that knowledge acquired in one firm is employed in another.

Taufic I.Shaikh (2008) in the research paper on *"Job hopping and Attrition Rate"* made analysis on the magnitude and impact of attrition rate. Further, the author opined that improper working hours, lack of growth opportunities, pursuit of salary increments and monotony of the job are some of the reasons for rising job hopping in software industry.

Feng, Wong Chyi *et al.* (2010) in their research paper *"Turnover Intention And Job Hopping Behaviour of Music Teachers in Malaysia"* revealed that music teachers in Malaysia were less likely to leave when they perceive their music schools supported them, and when they are job satisfied, and not emotionally exhausted from the pressures of teaching.

Subha.T (2014) in her research paper *"A Study on Job Hopping in the BPO Sectors with Reference to Coimbatore City"* stated that job hopping is one of the prime challenges faced by BPO industry and this is due to in search of higher salary, better positions and better benefits.

Deepti Pathak (2014) in the article titled *"Job Hopping and Turnover Intentions: An Empirical Study"*, concentrated on investigating the relationship between job hopping and turnover intentions and explore the mediating effect of employee engagement.

Naresh, bura *et al.* (2015) in the research paper *"Job Hopping in Software Industry With Reference to Select Software Companies: A Study"* critically examined the job hopping scenario in selected software companies. The study provides comparative analysis on the attrition rate. Further, the study also investigates the problem of job hopping by taking into consideration of 7 select dimensions.

Objectives of study

- To study the scenario of job hopping in Academics.

- To determine the relationship between turnover intentions, job satisfaction and compensation.

- To provide solutions to employers about the problems on job hopping.