

Millennials perception towards organizations in Industry 4.0: An empirical analysis.

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ABSTRACT:

The researchers in this work used a tool to analyze the millennials' perception (financial & non financial) while selecting a specific organization for the purpose of an employment. In specific the researchers have used Principal Component Analysis (PCA) to explore the Principal components out of a set of variables used in the analysis. This is to define the specific variables and their order of interpersonal behaviour in a selection process. To analyze the same we collected empirical data from 140 millennials from 12 different organizations from three districts, namely Rayagada, Gajapati and Ganjam from the state of Odisha, India. Out of these, only 120 are the valid responses which finally we analyzed. A pre and post test is conducted to define the final questionnaire. The collection of data from the sample is purely on random basis. The survey was conducted in the month of September, 2019. The proposed model is used to find the principal components and the valid variables which impacts the decision making process of a millennial. The major finding are that, out of nine variables only six variables are found relevant while selecting an organization, these are in order of their importance are; career growth, interpersonal relationship, quality of job life, brand image of organization, some other personal factors and finally a MNC. While the unimportant variables are; post retirement benefits, free facilities and distance from home.

Key words: Principal Component Analysis (PCA), random sampling, perception, empirical data

I. INTRODUCTION:

Now days, job become one the basic needs of the present society. The job everybody looks for is a professional type, which could secure their life in terms of getting employments. Even though the final destination is a job, but interpersonal behaviour are always not given to that organization offers a career growth, rather some other factors also impacts while selecting a professional organization. There are lists of interpersonal traits while selecting an instruction by a millennial, here it becomes important to understand the mind set of those. Hence jobs once termed as a practice is become a business and the rate at which the new organizations are coming up every day with billions of investment, it become very important to understand the mindset of the millennials. What exactly a millennials look for, a millennials perception for an organization need to be understood first. At this context the researchers through this article tried to understand the same, and propose an insight on the millennials psychology while selecting a professional organization for their higher job.

II. REVIEW OF LITERATURE:

These are few of the literatures; those have worked on the millennial's perceptions for an professional organization. Senthilkumar et al. (2009) did a research on the determinants of service quality in the higher job organizations in India, in specific to the organizations in specific for the state of Tamil Nadu. He concluded that the major determinants are the career growth, teaching quality, quality of the work life members, physical resources and a wide range of disciplines. These in other term speak about the career growth of the graduate and post graduate millennials in a higher job organization.

Arambewela et al. (2009) by their research on an empirical model of international millennial satisfaction, proposed through a theoretical model that, the perceived level of satisfaction of the millennials is depend upon the nature of services. This manly depends upon the financial and non non-financial services.

Marks et al. (2005) through the research on predictors for effective online learning by use of the Structural Equation Modeling, did an investigation on interactions among three components on job i.e. instructor, millennial and content. They concluded that instructor is the major component for any effective learning process.

Arulraj et al. (2007) on a study of career growth (career growth) as a criteria to determine the service quality of an organization through a SQM-HEI model revealed that there are three major components which determine the service quality of an organization, these are; teaching style, study environment and discipline. They developed a 30 variable instrument, which are empirically tested with the uses of AMOS 7 for structural equation model & Bayesian estimation and testing.

Pituch et al. (2006)on a study of the perception of millennials for an e learning system. They proposed the alternative models of learning, proposes a model consists of external variables, perceived usefulness, perceived ease of use, intention behaviour and use of system. They named it as the technology acceptance model.

Amaury Nora (1987) in its research on the determinants for retention of college millennials by use of structural equation modeling proposes that,

2.1. Gap in the present research:

Most of the research articles used the Factor analysis as a tool for its statistical analysis. Even there are application of AMOS as a tool for analysis and interpretation. We found no researchers using PCA as a tool to analyze the variables.

2.2. Objective of the study:

Hence, to fill the gap in the past career growth, we are using the Principal Component Analysis (PCA) to find out the principal components and important variables which a millennial gives maximum priorities.

The objective is also to make a hierarchical order or the series of variables in accordance to the pinterpersonal behaviour.

III. Research Methodology

The methodology basis in this research paper is the survey of the millennial's opinion (perception) while selecting an organization for their higher career growth. Out of 9 major questions, the researcher tries to find out the principal components (major variables) which influence their selection criteria. Hence we used the statistical model of principal component analysis (PCA) to analyze the survey.

3.1. Survey process

The survey process follows a systematic sequence of following steps.

3.2. Literature review:

Following different literature reviews and also by considering different traditional possible dimensions of millennial are perceptions for selecting an organization for higher employment.

The survey form designed consists of the following;

3.3. Design of Questionnaire:

The questionnaire designed in the survey form is having two sections, first section contains five questions speaks about the general information (Background) of the millennial and second section contains nine questions are related to the information about the perception of millennials while selecting an organization for pursuing an employment. The scaling used in the questionnaire is designed as per the five point Likert scale.

Under the Five point Likert scale, the points represents as follows;

- Point 1 for very unimportant
- Point 2 for unimportant
- Point 3 for cannot say
- Point 4 for important
- Point 5 for very important

3.4. Pre-test & Post-test

The questionnaire was first pretested on 20 numbers of millennials from five different organizations belonging to the district of Rayagada to check whether the language & text used in it is under stood clearly or not and also other structural issues in it. The questionnaire was then further adjusted as per the desired levels of the changes it required and finally the revised format was tested one more time on same number of millennials from same organizations, hence a post test is also done on the questionnaire before we move to the final collection and analysis of the data . Basically it is used to check the communality issues in the research. It ensures that the final research is having all the expressions are true on its consistency and nature.

3.5. Questionnaire format items:

The questionnaire contains the following five general information items and nine perception related items in Table 1.

Table: 1. Questionnaire format

BACKGROUND INFORMATION:	SOURCE
Name	Author
Age	Author
Place	Author
Qualification	Author
Family income	Author
PERCEPTION RELATED INFORMATION	SOURCE
MNC	Author and past literature career growth
Distance	Author and past literature career growth
Career growth	Author and past literature career growth
Interpersonal relationship	Author and past literature career growth
Quality of Job life	Author and past literature career growth
Free facilities facilities	Author and past literature career growth
brand image (Reputation)	Author and past literature career growth
Post retirement benefits	Author and past literature career growth
Others	Author and past literature career growth

Source: Author

3.6. Data collection

The survey area is the three districts of the state Odisha i.e. Ganjam , Gajapati and Rayagada. Millennials are the targeted sample, mostly the millennials from the higher secondary job organizations and organizations those who are expected to opt for a further higher job, in specific the employment. A face to face personal interview is done with the use a structured close end questions. The sample size was 140 numbers of millennials belongs to 12 different national and international organizations. The selections of the organizations are purely random in nature, as well the selection of millennials. There are 120 valid responses out of these 140 responses by excluding some of the outliers.

Hence the valid response rate is about 86% of the responses, which is good enough to validate and generalize the research outcome.

3.7. Research framework

Once the data is collected the real analysis begins with a sequence of steps, and in our research it follows basic five steps.

1. Standardization of data
2. Computing the covariance matrix
3. Calculate the Eigen vectors and values
4. Computing principal components
5. Reducing the dimensions of data set

3.7.1. Step: 1.

Under the process of standardization of data, it deals with scaling of the data in such a way that there is a common / similar range under which all the variables and its range will fall. It is calculated by subtracting the variable value from the mean, and the whole is divided by its standard deviation. It is observed on the basis of the Z value that, the data maintains a standard scale between + 2 SD to - 2 SD.

3.7.2. Step: 2.

It is necessary to identify the highly correlated variables as they may destruct the overall data structure and information (biasness & reluctant), hence it is necessary to find the correlation and dependencies among the variables. By the help of the covariance matrix we could find out the such variables and treat those accordingly.

As per the mathematical calculation it uses $P \times P$ and $Q \times Q$ matrix, where P explains the dimensions of the data and Q represents the quantile. Under $P \times P$ Matrix, each of the entries represents the corresponding variable's covariance i.e. the co-dependence between the variables. If the covariance is negative it signifies that there is a negative or indirectly proportionate relation between the variables, while a positive value signifies the opposite. Besides the values of covariance represents the strength of relation between the variables.

3.7.3. Step: 3.

Normally the data is scattered randomly with different degree of variances and along different dimensions, hence it is required to concentrate the scattered the data around some distinct dimensions. This concentrating the data in to different dimensions is done with the help of Eigen vectors, which represents the dimension along which the data need to be concentrated. In the context of Principal Component Analysis, an Eigen value represents the scalars of the respective Eigen vectors, which is normally taken as one. Hence these eigen vectors and values represents the number of principal components in a data set.

Note: the objective of the PCA is to find out the principal components (new set of limited variables from the existing all variables) which are significantly different from each other by compressing and processing the most important and distinct information when the data is scattered randomly.

3.7.4. Step: 4.

Having the computed values of Eigen vectors and values, the next step is to order them in a descending manner to enable the most significant variables to be the principal components among the set of variables. Highest the Eigen values is the highest most significant, and lowest the value is the lowest significant. It is to noted that, the variables having the Eigen value more than one is considered as the number of different dimensions, and also is the number of principal components. hence the principal component having less significant are removed so as to reduce the dimension of the data set. This computing the principal components meant for construct a matrix called as Future matrix, which contains all the significant variables containing maximum of the information.

3.7.5. Step: 5.

This is the final step of performing PCA, which deals with the reorganize the variables along with the principal components so as to minimize the number of variables and maximize the chances of its representation of information. To re organize the variables PCA follows a simple multiplication of the transpose of initial data with the obtained transpose of calculated Feature vector.

IV. ANALYSIS AND INTERPRETATIONS:

4.1. Descriptive Data Analysis:

The data (table 2) shows that, the millennials emphasizes all the attributes as more than the average rating (3) on a liker type scaling. Also among the nine attributes, teaching quality (quality of the teachers) is ranked the highest with an average rating of 3.96, and free facilities facilities is ranked the lowest with an average rating of 3.44.

Table: 2. Rating and Ranking:

Attributes	MNC	Post retirement benefits	Near to home	Job career growth	Interpersonal relationship	Teaching quality	Free facilities facilities	Brand name	Others
Factor	F1	F2	F3	F4	F5	F6	F7	F8	F9
Average Rating	3.75	3.78	3.49	3.57	3.50	3.96	3.44	3.80	3.53
Average Ranking	4	3	8	5	7	1	9	2	6

Source: Author

The major three attributes besides *teaching quality* are; organization *Brand image/reputation* and *course Post retirement benefits*. With these major three considerations, the millennials select an organization offering a higher professional course.

On the contrary, the least three attributes besides free facilities facilities are; Distance of organization from the home and Interpersonal relationship. A third attributes; Job Career growth (campus interview) lies at the middle of the rank with an average rating score of 3.57.

The other two attributes above and below this middle attribute are; millennial prefer an MNC over a college and some other factor respectively while selecting an organization for their higher job.

Table: 3. Descriptive Analyses:

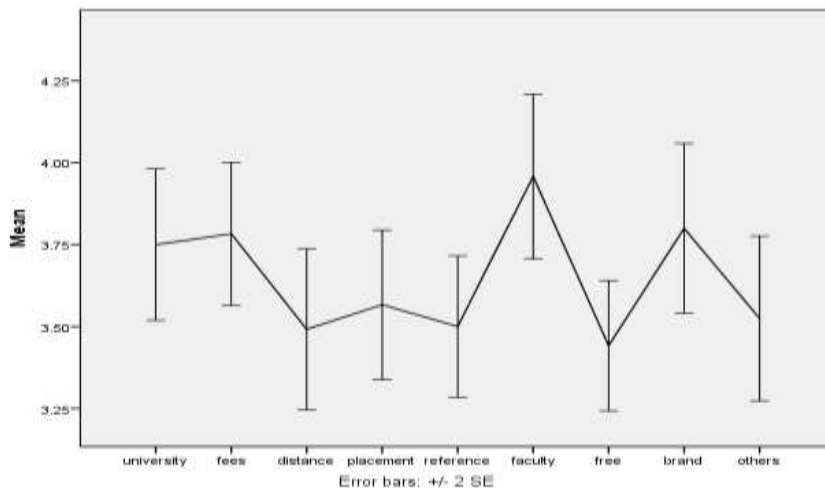
Attributes/variables		MNC	post retirement benefits	distance	interpersonal relationship	facilities	free facilities	reputation	others	career growth
		F1	F2	F3	F4	F5	F6	F7	F8	F9
N	Valid	120	120	120	120	120	120	120	120	120
	Missing	0	0	0	0	0	0	0	0	0
Mean		3.75	3.78	3.49	3.50	3.96	3.44	3.80	3.53	3.57
rating		4	3	8	7	1	9	2	6	5
Std. Error of Mean		.116	.109	.123	.108	.125	.100	.129	.126	.114
Median		4.00	4.00	4.00	4.00	4.50	4.00	4.00	4.00	4.00
Mode		5	4	5	4	5	4	5	5	5
Std. Deviation		1.265	1.197	1.347	1.181	1.374	1.091	1.418	1.378	1.248
Variance		1.601	1.432	1.815	1.395	1.889	1.190	2.010	1.899	1.559
Skewness		-.908	-1.068	-.559	-.529	-1.208	-.796	-.808	-.563	-.339
Std. Error of Skewness		.221	.221	.221	.221	.221	.221	.221	.221	.221
Kurtosis		-.115	.503	-.730	-.518	.146	.171	-.752	-.934	-1.050
Std. Error of Kurtosis		.438	.438	.438	.438	.438	.438	.438	.438	.438
Range		4	4	4	4	4	4	4	4	4
Sum		450	454	419	420	475	413	456	423	428

Source: Author

The data in above table (3) represents, median of 4 for all the attributes except quality of faculties having the median of 4.5. In response to the mode (the maximum of cases) where the millennials very highly agreed that, these attributes are highly significant for selecting an organization are; MNC, Distance, quality faculties, brand value, career growth and some others. While they expressed that, post retirement benefits, interpersonal relationship and free facilities facilities plays a significant role in their decision. The Z value of the kurtosis and skewness represents there are few attributes which shows a level of Kurtosis & skewness, but its range lies between + 1.96 to -1.96. this represents that the data is normally distributed. The further demonstrate that the variances from the means of the attributes are not same.

Below chart (1) is a graphical presentation of the means of the attributes, where we could find that, the attributes like; quality of the faculties, brand value, post retirement benefits and University showing a very higher range of mean in comparison to others. The attribute like; distance, career growth, free facilities facilities and other factors shows a lower mean. The diagram also represents the standard errors of these means.

Chart: 1. Mean and Standard error:



Source: Author

4.2. Distribution of Data set:

The distribution of the data set shall be further analyzed by use of a P-P plot, which will enable us to understand and compare cumulative distribution function of the empirical data against a standard (theoretical) distribution function. A P-P Plot data set model is presented in the below table (4)

Table: 4. P-P Plot for the data set

Model Description		
Model Name	Millennial interpersonal relationship	
Series or Sequence	1	MNC
	2	post retirement benefits
	3	distance
	4	career growth
	5	interpersonal relationship
	6	work life

	7	free facilities
	8	brand
	9	others
Transformation		Natural logarithm
Non-Seasonal Differencing		1
Seasonal Differencing		0
Length of Seasonal Period		No periodicity
Standardization		Applied
Distribution	Type	Normal
	Location	estimated
	Scale	estimated
Fractional Rank Estimation Method		Tukey's
Rank Assigned to Ties		Mean rank of tied values
Applying the model specifications from Millennial pinterpersonal relationship		

Source: Author

The final P-P Plot model description allows us the following information; there are 9 series of events, transformation through a natural logarithm, standardization is applied, distribution is normal, scaling is appropriate, liker 5 point scale with ordinal data, application of Tukey’s Fractional rank estimation method and finally the rank is assigned on the basis of mean rank of the tied values.

Table: 6. Case Processing Summary

		MNC	post retirement benefits	distance	career growth	interpersonal relationship	work life	free facilities	brand	others
Series or Sequence Length		120	120	120	120	120	120	120	120	120
Number of Missing Values in the Plot	Negative or Zero Before Log Transform	0	0	0	0	0	0	0	0	0
	User-Missing	0	0	0	0	0	0	0	0	0
	System-Missing	0	0	0	0	0	0	0	0	0
The cases are unweighted.										

There are no missing values in the data collected and analyzed.

Source: Author

Table: 7. Estimated Distribution Parameters

		MNC	post retirement benefits	distance	career growth	interpersonal relationship	work life	free facilities	brand	others
Normal Distribution	Location	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
	Scale	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
The cases are unweighted.										

Source: Author

The P-P Plot of individual items in its graphical presentation, further provide a clear view of the cumulative distribution function of variables. The same is presented in 9 different graphs (chart 2-9) below.

Chart: 2. P-P Plot (MNC)

Chart: 3. P-P Plot (course fee)

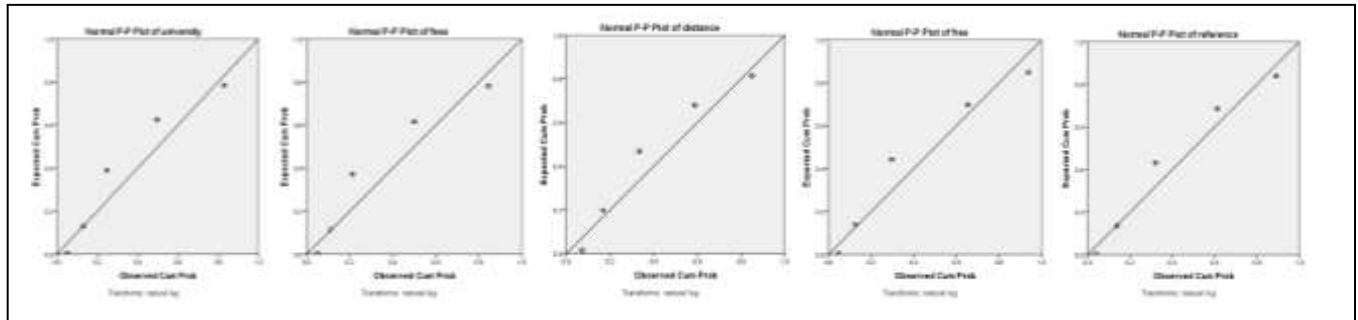
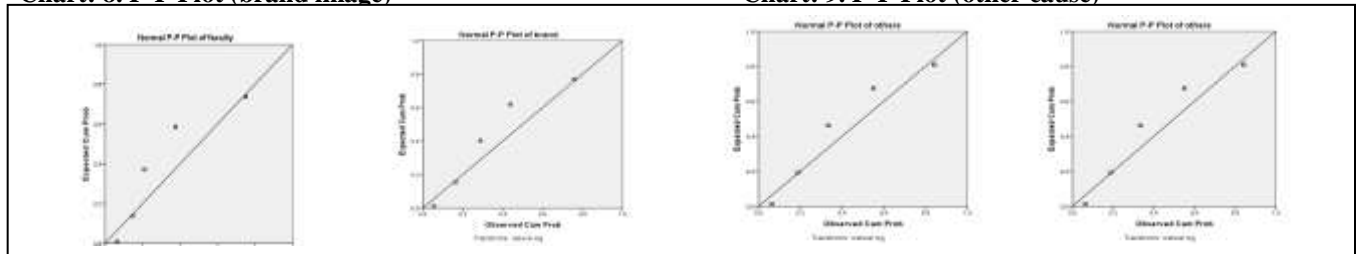


Chart: 8. P-P Plot (brand image)

Chart: 9. P-P Plot (other cause)



Sources: Author by SPSS

4.3. Correlation Matrix:

Correlation matrix (table.5) represents the correlation between different attributes of selection of an organization, bigger the correlation value, the better correlation is. All the attributes are correlated to rest other attributes to an extend depending on the responses presented by the respondents. The significance level of the attributes also presented in the matrix speaks about the level of significance to which this correlation is valid. The responses having the value greater than + or – 3 shall be considered in this case.

The significance level is on one tailed test of significance. The attributes showing less than 0.005 is considered as a significance value. i.e. there is a significant relation between the attributes at 95% level of significance.

Table: 5. Correlation Matrix

Correlation Matrix ^a										
		MNC	post retirement benefits	distance	career growth	interpersonal relationship	work life	free facilities	brand	others
Correlation	MNC	1.000	.352	.324	.660	.647	.724	.282	.581	.471
	post retirement benefits	.352	1.000	.280	.235	.416	.485	-.003	.306	.452
	distance	.324	.280	1.000	.253	.441	.234	.125	.184	.082
	career growth	.660	.235	.253	1.000	.576	.655	.345	.558	.407
	interpersonal relationship	.647	.416	.441	.576	1.000	.691	.447	.552	.467
	work life	.724	.485	.234	.655	.691	1.000	.293	.694	.486
	free facilities	.282	-.003	.125	.345	.447	.293	1.000	.221	.281
	brand	.581	.306	.184	.558	.552	.694	.221	1.000	.540

	others	.471	.452	.082	.407	.467	.486	.281	.540	1.000
Sig. (1-tailed)	MNC		.000	.000	.000	.000	.000	.001	.000	.000
	post retirement benefits	.000		.001	.005	.000	.000	.486	.000	.000
	distance	.000	.001		.003	.000	.005	.086	.022	.188
	career growth	.000	.005	.003		.000	.000	.000	.000	.000
	interpersonal relationship	.000	.000	.000	.000		.000	.000	.000	.000
	work life	.000	.000	.005	.000	.000		.001	.000	.000
	free facilities	.001	.486	.086	.000	.000	.001		.008	.001
	brand	.000	.000	.022	.000	.000	.000	.008		.000
	others	.000	.000	.188	.000	.000	.000	.001	.000	
a. Determinant = .012										

Source: Author

The above table finally has shown a determinant value of 0.012 and as per the theory any determinant value greater than 0.0001 shall be considered as there a gross correlation between the variable in a data det.

4.4. Test of Sampling adequacy:

The KMO and Bartlett’s test (table.6) further confirms that there is a sampling adequacy and sphericity of the data, by its value of 0.830 and 0.00005 respectively.

Table: 6. **KMO and Bartlett's Test**

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.830
Bartlett's Test of Sphericity	Approx. Chi-Square	507.552
	df	36
	Sig.	.000

Source: Author

Note: KMO value above .9 is marvelous, .8 to .9 is meritorious, .7 to .8 is middling, .6 to .7 is mediocre, .5 to .6 is miserable, and less than .5 is unacceptable. It is the entire correlation of the samples. Further for any value smaller than 0.001 on Bartlett’s test is the confirmation of significant relationship among the values of the attributes. Hence the sample shows meritorious values which assure that the data is sufficient enough for further analysis and treatments.

4.4. Test of Communalities:

To understand the how much the attributes are correlated on the basis of the questionnaire designed and clarity in understanding while answering, the test of communalities is applied.

The above table on communalities represents there the data is significant as the communalities is more than the minimum expected. On this parameter; distance shows the maximum, while other factors show the least.

Table: 7. **Communalities**

Communalities		
	Initial	Extraction
MNC	1.000	.696
post retirement benefits	1.000	.742
distance	1.000	.902
career growth	1.000	.651

interpersonal relationship	1.000	.766
work life	1.000	.782
free facilities	1.000	.719
brand	1.000	.669
others	1.000	.629
Extraction Method: Principal Component Analysis.		

Source: Author

Note: Community very low for an item, it usually represents the variables are completely unrelated. The items are poorly designed i.e. poorly drafted or not understood. It represents the biasness if low communality. Initial value is 1 while the Extraction values good close to 1

V. EXTRACTION METHODS:

5.1. Total variance explained

Purpose of PCA is to explain as much as the variance in the model, its contribution to the total variance in the model is expressed in form of Eigen value. We used Eigen value as 1; hence any component having the Eigen value more than 1 represents the Principal components.

Component one, two and three combined represents 72.847 % of variables of which component one stands for almost 50 % of variables (49.857), component two represents 11.118% and component three represents 11.118 of variances

Table: 8. Total Variance Explained

Total Variance Explained							
Component	Initial Eigen values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings ^a
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	4.487	49.857	49.857	4.487	49.857	49.857	4.309
2	1.069	11.873	61.730	1.069	11.873	61.730	1.160
3	1.001	11.118	72.847	1.001	11.118	72.847	1.914
4	.753	8.372	81.219				
5	.487	5.410	86.629				
6	.411	4.563	91.191				
7	.335	3.727	94.919				
8	.273	3.038	97.956				
9	.184	2.044	100.000				

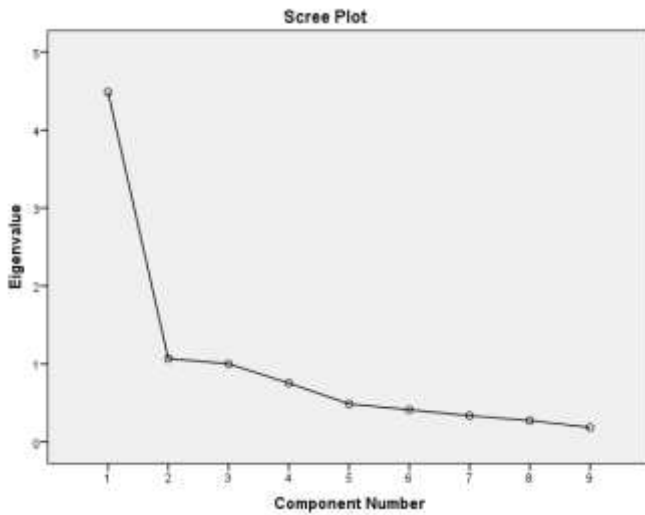
Extraction Method: Principal Component Analysis.

a. When components are correlated, sums of squared loadings cannot be added to obtain a total variance.

Source: Author

By the above calculation, there are three components are being extracted from the list of components. The same also further confirmed by use of a scree plot. On this scree plot there is a point of deflection, which divides all the components in to two parts. The components above the deflection are considered are the principal components and the components below the scree plot are non principal components.

Chart: 10. Scree plot of principal components



Source: Author

The deflection point in the scree plot represents the number of components to retain, hence there are utmost three components to be retained.

5.2. Computing principal components:

5.2.1. Component matrix

By the help of component matrix, the Principal component analysis has extracted three components, 1, 2 and 3, by the un-rotated values of the factor loading. The components having higher values are found suitable to be included under the components. Under component one the factors having higher and near equal values are grouped on one, these are from factor 1, 2, 3, 4, 5 and 6. While component 2 has two factors i.e. factor 5 and 6, but these are negatively correlated. Component 3 has two, these are factor 6 and 9, and of these factors 9 is having higher positive value, while factor 6 is having an insignificant lower and negative value. It shows that all the variables under different components shows a significant value to be considered for analysis.

Table: 9. Component matrix

Component Matrix ^a			
	Component		
	1	2	3
work life	.874		
interpersonal relationship	.843		
MNC	.834		
career growth	.774		
brand	.773		
others	.674		-.411
free facilities	.443	-.696	
post retirement benefits	.547	.662	
distance	.415		.804
Extraction Method: Principal Component Analysis.			
a. 3 components extracted.			

Source: Author

Note: Factor analysis has identified three components

5.2.1.1. Factor loading of items

The extraction under the principal component analysis, the pattern matrix is derived by rotated oblimin with Kaiser Method of normalization, it gave 9 iterations. Rotation is oblimin believing that the factors are not independent; rather they all are correlated to each other. With this matrix it is found that, variables from 1 to 6 are having a almost near value to be grouped under the component 1. While component 2 is having variable number 7 & 8 and component 3 is having variable 6 & 9 but are in not similar values.

5.2.1.2. Pattern Matrix (3 components)

Pattern matrix describes the pattern of the items, which are extracted by a Principal component analysis and by following an oblimin rotation with Kaiser Normalization. The pattern matrix is presented in the below table (10)

Table: 10. Pattern matrix

Pattern Matrix^a			
	Component		
	1	2	3
work life	.855		
brand	.843		
others	.834		
MNC	.736		
career growth	.692		
interpersonal relationship	.628		.394
Free facilities facilities		- .758	
post retirement benefits	.534	.619	
distance			.973
Extraction Method: Principal Component Analysis.			
Rotation Method: Oblimin with Kaiser Normalization.			
a. Rotation converged in 9 iterations.			

Source: Author

5.2.1.3. Component correlation (3 components):

The next step is to do an analysis of component correlation analysis, under this it is found that there is very low degree of correlation between the component 1 & 2. There is small correlation between the component 1 and 3. The rotation for normalization is once again by the Oblimin with Kaiser Method for the extraction under principal component analysis.

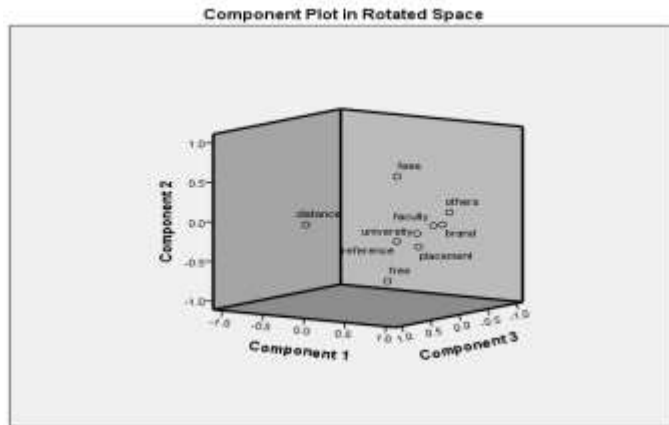
Table: 11. Component correlation Matrix

Component Correlation Matrix			
Component	1	2	3
1	1.000	-.085	.317
2	-.085	1.000	-.068
3	.317	-.068	1.000
Extraction Method: Principal Component Analysis.			
Rotation Method: Oblimin with Kaiser Normalization.			

Source: Author

The same is presented in form of a 3 D model, which also further confirm that 6 variables are good enough to be considered under one component i.e. component 1.

Chart: 11. 3D plot of component correlation matrix



Source: Author

5.3. Results

We finally we got list of variables under the principal component one and two are as follows;

Principal component 1 includes 6 variables i.e.

1. MNC
2. Career growth
3. Interpersonal relationship
4. Work life
5. Brand image
6. Others

While, the Principal component 2 and 3 includes 3 variables
These are;

1. Distance
2. Post retirement benefits
3. Free facilities facilities

VI. RELIABILITY TEST:

The next step is to do a reliability study of these two components.

6.1. Reliability statistics for component one (1)

6.1.1. Summary of Principal component one.

A reliability study starts from a case processing summary, which is as follows (Table 1);
There are 120 valid responses, no missing values, and a list wise deletion of variables procedure is applied.

Table: 16. Case Processing Summary of component one

Case Processing Summary			
		N	%
Cases	Valid	120	100.0
	Excluded ^a	0	.0
	Total	120	100.0

a. Listwise deletion based on all variables in the procedure.

Source: Author

6.1.2. Reliability statistics of Principal component one:

The reliability statistics is expressed in form a Cronbach’s alpha, the same is used to measure the internal consistency (coefficient of reliability) of the data i.e. the how closely the items are correlated as a set of item and also as a group.

It is to note that, ahigher value of alpha represents a higher degree of internal consistency i.e. they are related to each other very closely.

The value of cronbach’s Alpha derived (Table 17) is .891 which is significant enough to conclude that there is a very high degree or internal consistency between the items and within the groups.

Table: 17. **Reliability Statistics of component one.**

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.891	.893	6

Source: Author

6.1.3. Inter-item correlation of Principal component one:

The inter item correlation is found to be significant, being the values are positive and on higher values.

Table: 18. **Inter-Item Correlation Matrix of component one.**

Inter-Item Correlation Matrix						
	career growth	interpersonal relationship	work life	brand	others	MNC
career growth	1.000	.576	.655	.558	.407	.660
interpersonal relationship	.576	1.000	.691	.552	.467	.647
work life	.655	.691	1.000	.694	.486	.724
brand	.558	.552	.694	1.000	.540	.581
others	.407	.467	.486	.540	1.000	.471
MNC	.660	.647	.724	.581	.471	1.000

Source: Author

The inter item correlations reveals the following information;

With Item Career growth, item work life quality is best correlated

With item interpersonal relationship, item work life quality again best correlated

With item work life, Item MNC is best correlated.

With item brand image, item work life is best correlated

With item other cause, Item MNC is best correlated

With item MNC, item work life is best correlated.

Table: 19. **Inter-Item Covariance Matrix of component one.**

Inter-Item Covariance Matrix						
	career growth	interpersonal relationship	work life	brand	others	MNC
career growth	1.559	.849	1.125	.988	.700	1.042
interpersonal relationship	.849	1.395	1.122	.924	.761	.966
work life	1.125	1.122	1.889	1.353	.921	1.258
brand	.988	.924	1.353	2.010	1.055	1.042
others	.700	.761	.921	1.055	1.899	.821
MNC	1.042	.966	1.258	1.042	.821	1.601

Source: Author

6.1.4. Summary statistics of principal component one (1)

Summary of the statistics is presented below (table 20) reveals the following information; Mean value is 3.683 which is much convincing; inre item covariance is about 99.5 %. Correlation is about 58.1%.

Table: 20. **Summary Item Statistics of component one.**

Summary Item Statistics							
	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	3.683	3.500	3.958	.458	1.131	.033	6
Item Variances	1.725	1.395	2.010	.615	1.441	.058	6
Inter-Item Covariances	.995	.700	1.353	.653	1.933	.031	6
Inter-Item Correlations	.581	.407	.724	.317	1.778	.009	6

Source: Author

On the individual item analysis, all the 6 variables found having Cronbach’s alpha much higher i.e. coefficient is more than .855 and as high as .895.

6.1.5. Item-Total Statistics of component one.

Table: 21. **Item-Total Statistics of component one**

Item-Total Statistics						
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted	
career growth	18.5333	29.243	.697	.520	.874	
interpersonal relationship	18.6000	29.570	.720	.543	.871	
work life	18.1417	26.761	.813	.691	.855	
brand	18.3000	27.472	.722	.549	.870	
others	18.5750	29.793	.566	.345	.895	
MNC	18.3500	28.347	.762	.614	.864	

Source: Author

6.1.6. Intra-class Correlation:

The intra-class correlation (table 22) with single measure is 0.577 and with average measure is 0.891.

Note: the intra class correlation coefficient at its lower side must be above .7, more the coefficient is more the correlation.

Hence we could find that there is a higher degree of intra class correlation between the items. As it is higher than .7 and it is almost .9 hence there is a very high degree of correlation. Also on its lower bound it is .858 which is large enough to conclude the same, and its upper bound it is .919. These all signifies that there is a very high degree of correlation within the class.

The significant F value is 0.0001 which is less than .001, which represents that there is a significant relation between the items.

Table: 22. **Intra-class Correlation Coefficient of component one**

Intraclass Correlation Coefficient							
	Intraclass Correlation ^b	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.577 ^a	.501	.653	9.179	119	595	.000
Average Measures	.891 ^c	.858	.919	9.179	119	595	.000
Two-way mixed effects model where people effects are random and measures effects are fixed.							
a. The estimator is the same, whether the interaction effect is present or not.							

- b. Type C intraclass correlation coefficients using a consistency definition-the between-measure variance is excluded from the denominator variance.
- c. This estimate is computed assuming the interaction effect is absent, because it is not estimable otherwise.

Source: Author

6.2. Reliability statistics for component two (2 &3)

6.2.1. Case Processing Summary

Case summary is similar to the component 1

Table: 23. Case Processing Summary of component two.

Case Processing Summary			
		N	%
Cases	Valid	120	100.0
	Excluded ^a	0	.0
	Total	120	100.0

a. Listwise deletion based on all variables in the procedure.

Source: Author

6.2.2. Reliability statistics:

Reliability statistics for internal consistency through Cronbach’s alpha gave the coefficient value of .333 which is much lesser than .07, hence these is an issue of internal consistency in the data set. We should not proceed for any further analysis. Still we believe to re test on other dimensions.

Table:24. Reliability Statistics of component two

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.333	.317	3

Source: Author

6.2.3. Inter-item correlation:

The inter item correlation is also very poor i.e. less than .280 and even negative. Further rejects any type of inter item correlation.

Table: 25. Inter-Item Correlation Matrix of component two

Inter-Item Correlation Matrix			
	post retirement benefits	distance	free facilities
post retirement benefits	1.000	.280	-.003
distance	.280	1.000	.125
free facilities	-.003	.125	1.000

Source: Author

6.2.4. Inter-item covariance:

Same issue with the inter item covariance. It’s not significant

Table: 26. Inter-Item Covariance Matrix

Inter-Item Covariance Matrix			
	post retirement benefits	distance	free facilities
post retirement benefits	1.432	.452	-.004
distance	.452	1.815	.184
free facilities	-.004	.184	1.190

Source: Author

6.2.5. Summary item statistics

The summary stamen says, there is no issue with the item means, but the correlation and covariance is not significant.

Table: 27. Summary Item Statistics

Summary Item Statistics							
	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	3.572	3.442	3.783	.342	1.099	.034	3
Item Variances	1.479	1.190	1.815	.625	1.525	.099	3
Inter-Item Covariances	.211	-.004	.452	.456	-104.097	.042	3
Inter-Item Correlations	.134	-.003	.280	.284	-84.283	.016	3

Source: Author

6.2.6. Item Total statistics:

The individual item also shows a negative or very low coefficient of Cronbach’s alpha, that means the internal consistency of the individual item is also not significant. This violates the reliability model further.

Table: 28. Item-Total Statistics

Item-Total Statistics						
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted	
post retirement benefits	6.9333	3.374	.204	.080	.219	
distance	7.2250	2.613	.292	.095	-.007 ^a	
free facilities	7.2750	4.151	.081	.017	.436	

a. The value is negative due to a negative average covariance among items. This violates reliability model assumptions. You may want to check item codings.

Source: Author

6.2.7. Intra-class Correlation:

To check the intra class correlation, we found the correlation coefficient is .333 which much lower than the desired value of 0.7. and on 95% confidence level it shows only .095 on its lower side and .561 on its higher side. Hence we could definitely say that there is no intra class correlation. To justify the same again, the F test value also reject the same with the significant value of .005, which is much lower than the critical value of .001

Table: 29. Intra-class Correlation Coefficient

Intra-class Correlation Coefficient							
	Intra-class Correlation ^b	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.142 ^a	.034	.262	1.498	119	238	.005
Average Measures	.333 ^c	.095	.516	1.498	119	238	.005

Two-way mixed effects model where people effects are random and measures effects are fixed.

a. The estimator is the same, whether the interaction effect is present or not.
b. Type C intraclass correlation coefficients using a consistency definition-the between-measure variance is excluded from the denominator variance.
c. This estimate is computed assuming the interaction effect is absent, because it is not estimable otherwise.

VII. FINDINGS & SUGGESTIONS:

7.1. Research Findings:

The model validates that, out of nine items (variables) selected for this study only 6 are the valid cases which impacts positively while a millennial select a specific organization for its higher employments. These variables in order of their interpersonal behaviour are as follows;

Career growth, Interpersonal relationship, Quality work life, Brand image, some other factors and finally the MNC.

It is also can be concluded that the items are also correlated to each other in many ways, i.e. intra item and inter item. There are few best fit of first order could be determined. These are as follows;

With Item Career growth, item work life quality is best correlated

With item interpersonal relationship, item work life quality again best correlated

With item work life, Item MNC is best correlated.

With item brand image, item work life is best correlated

With item other cause, Item MNC is best correlated

With Item MNC, item work life is best correlated.

It further found that the variables like, Distance, Post retirement benefits and free facilities facilities have never attract a millennial for pursuing its post further employment.

7.2. Suggestions:

The research suggests the following points;

a. A professional organization shall give more importance on the activities related career growth activities, these shall include all career growth capacity enhancing skills i.e. all skill related to industry and market demands.

b. It further suggest that the millennials, the parents of the millennials and their friends and relatives shall be satisfied with the services offered by the organization, so that they will refer the information seeking millennials to get admission.

c. Quality of the faculties also acts as a best part of the human resource, who play a major role in attract the millennials to get admitted. The quality in terms of both intellectual as well as human skills are the basis of measurement.

d. Brand image is such an intangible thing which comes automatically by consistent performance of the organization in all dimensions of performance. Hence there is no short cut to get the brand image overnight.

e. There are some other factors which are hidden, sometimes they follow an ideal person who is studying or going to joi. It is also group of friend they take decision as a whole group, they move in a mass.

f. People also prefer a MNC due to its flexibility on curriculums and other facilities which a MNC only can offer to its millennials. Hence being a MNC, an organization gets the advantage by its own benefits.

VIII. CONCLUSION AND SCOPE FOR FURTHER RESEARCH:

Conclusion;

The model of principal component analysis is used in this research article to evaluate the principal components which affect the decision making process of a millennial while he/ she is going to pursue a professional higher job. There are 9 items initially selected and among the items, we could construct only two principal components. The Principal component 1 contains 6 items and component 2 contains 3 items. The items under component 1 justified the selection perceptions and component 2 fails to do so.

Scope for further research:

This study is open for further more inter related career growth by its analysis and application. Few of these are follows;

The study on basis of gender pinterpersonal behaviour is still open for this research article

Instead PCA, a Factor analysis model could be applied to measure the items.

Instead of SPSS, some other statistical tool could be used to test the same. E.g. R Analytics, AMOS etc

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