PERCEPTUAL MAPPING OF PRIVATE BANK EMPLOYEE COMPETENCIES

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Introduction

The banking sector in India was forced to bear the brunt of the impact of the global financial meltdown, thanks to the active contribution of their multi-national contemporaries who have transcended the geographical boundaries of banking business. In the latter part of the last decade, several strategic business decisions that involved turn around, amalgamations, mergers and acquisitions were witnessed dotting the banking industry. It became imperative that banks – be they private or public sector had to frantically resort to different and novel business strategies not only for breaking even, but sheer sustenance too. While the RBI took several initiatives in this direction, the ultimate onus of banking was cleverly manipulated and cascaded to the branch level, which called for pooling in of all resources – be they financial, human, material or technological. All the resources depended heavily on the human factor to decide the right combination to safely settle in a comfortable profit zone. Technology also lent its hand to ensure that tedious and routine work could be minimized so that the employees can spare personalized attention to their prized customers to fulfill the twin objectives – customer retention and customer satisfaction through a strong banker-customer bond.

Periodical appointment of Committees by RBI is done to usher a favorable banking atmosphere for financial inclusion and ensure transparency while maintaining accountability and urging the employees to hone their competencies to match the spiraling demands of and the utter satisfaction of their huge clientele. With a compelling need to experiment novel banking techniques backed by technology, the employees have no option but to equip themselves with an impressionable skill set and competencies that go a long way not only in churning out business but also profits through their loyal customers.

Literature Survey

MDS has been used by hospitality and tourism researcher to provide a joint space of attributes and stimuli (**Dev, C. S., Morgan, M. S., & Shoemaker, S. 1995).** Position of companies or brands appearing on the perceptual map could be used by the companies to clarify the SWOT identified by customers' perceptions (**Dong Jin Kim and Woo Gon Kim, 2003).** Perceptual mapping is a tool normally used to visually represent customer perceptions on dimensions like products, brands, promotions, services etc.(**Jawaharlal and Kumar, 2004).** Performance management tools were used to justify the importance of marketing in insurance companies also. Sensory and mood perceptual maps were used for generating new energy drink product ideas (**Khajarern.K, 2012).** Perceptual mapping technique was used to create and discover product ideas relating to beer earlier (**Khajarern.K, 2001).** Three metrics of input of mapping to precision; receptiveness and fairness for precision were used for perceiving performance (**Peng Chen ;Magda El Zarki, 2011).**

Objectives

1. To identify the perception of emotional competencies of private bank employees using perceptual mapping.
2. To suggest measures to overcome drawbacks, if any.

Methodology

Data Collection

The data used for this study basically was primary in nature, although the interpretations and drawing of meaningful inferences was made possible by referring published literature from various journals, magazines and search engines. Although learned researchers have enlisted a total range of 45 competencies that a person may be equipped with, only 9 of them were selected as pertinent to the study and application of the tool. A well designed questionnaire spanning 9 constructs was structured to elicit the information from the private bank employees. The questions were coined to match the required application of the statistical tool, and the respondents rated the similarity of the pairs of competencies on a 5 point Likert Scale with "always"; "often"; "sometimes"; "rarely" and "never" options. The following gives details of the questionnaire:-

Construct	Construct Code
Demography	Dem
Communication	Comm
Professionalism	Profl
Decision Making	DM
Technical Skills	TS
Planning Ability	PA
Peer Behaviour	PB
Achievement Orientation	AO
Networking	NW
Leadership	LS

Sampling Technique and Size

For the purpose of this study, the researcher has used exploratory and descriptive research design, keeping convenience in mind. The following are the details of the primary data collected:-

Total No. of questionnaires	Circulated	Returned	Not Returned	Incomplete	Final Sample
	175	160	15	26	134

Statistical Tool Used

For analyzing the data collected for this study, the researcher has used **Classic Multi Dimensional Scaling (CMDS)** which is a statistical Technique created to transform data indicating the extent of similarity or dissimilarity between the factors rated to the respective scores indicating the distances between them. The Euclidean distance formula is used to compute these scores which are subsequently mapped indicating the distances. The proximity of the factors mapped indicates either the similarity (close fit) or dissimilarity (distant fit). The shape of the data for CMDS is square, where the rows and columns in the matrix represent the same sets of units/objects. Perceptual maps are normally used by market researchers especially for popularizing the brand image. These maps use MDS for its construction, with the help of SPSS software.

In this study the CMDS brings out the degree of similarity between the emotional competencies of front line private bank employees based on the 9 pivotal competencies as mentioned above that bankers need to be equipped with, to tackle the mounting and fast changing needs and expectations of the customers. CMDS analyzed the ratings to produce the positioning maps. Mapping was done to identify the similarity among the competencies along the specified number of dimensions or benchmark from the response received. The closer the items together in the map reflect the degree of perceived similarity by the respondents. However, **for the purpose of this study, the researcher has taken only one**

demographic variable, namely – age, and used a dual scale – up to 35 years and more than 36 years for the purpose of using this statistical tool.

Table-1 Table showing the Age of the respondents

Age	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Up to 35 years	66	100.0%	0	0.00%	66	100.0%
36 and above	68	100.0%	0	0.00%	68	100.0%

Source: Computed

Inference

The researcher has used a sample size of 134 respondents from select private sector banks in Chennai city. The above table shows the classification of respondents on the basis of age- (ie) up to 35 years and more than 36 years. It is seen that 66 respondents belong to the age group – up to 35 years, while 68 of them belong to the second category. In this case, the researcher has deliberately classified the age groups only on the above 2 basis, as it is easy to generalize the results got to even public sector banks. Besides, dilution/fragmentation of potent results is curbed when the classification is minimal only.

Output -1

Output showing the perceptual Data Matrix

The SPSS output provides the iteration history of the solution. Iterations as the original input data are transformed step by step to produce the final solution which is mapped for interpretation. The un-scaled means of similarity ratings of objects among the respondents is the first output from SPSS. The table showing the raw un-scaled data represents the nine chosen competency variables as enlisted in the output that are each used for paired comparisons on the left hand side as rows, and numbered 1-9 and across the top of the matrix as columns numbered 1-9. The two dimensional solution has been adopted for a better and clear interpretation.

A series of steps of calculations are involved for this, together with an iteration history. The Y- Stress formula is basically used to evaluate the degree of fitness or "**stress"** that ranges between the values 0-1. That indicate either a good/perfect fit (for a value closer to 0), or a worst fit (for a value closer to 1). The iterations will stop once the Young Stress does not show any improvement (decrease)/ the specified number of iterations is completed (maximum 30).

The RSQ value is the squared correlation coefficient between the distances and the data, whose variance is denoted in the solution.

Data Options-

Number of Rows (Observations/Matrix). 9
Number of Columns (Variables) . . . 9
Number of Matrices 2

Algorithmic Options-

Maximum Iterations 30
Convergence Criterion 00100
Minimum S-stress 00500

Raw (unscaled) Data for Subject 1

	1	2	3	4	5	6	7	8	9
1	.000								
2	7.874	.000							
3	8.367	6.782	.000						
4	10.817	11.358	11.705	.000					
5	8.660	7.141	9.220	11.402	.000				
6	8.775	7.681	8.660	11.225	8.832	.000			
7	6.856	4.796	7.280	9.899	7.616	8.124	.000		
8	10.000	8.602	10.488	9.644	8.775	6.856	8.185	.000	
9	10.488	9.055	6.325	10.630	11.091	9.110	9.434	9.487	.000

Raw (unscaled) Data for Subject 2

	1	2	3	4	5	6	7	8	9
1	.000								
2	7.874	.000							
3	9.644	9.110	.000						
4	9.592	10.392	11.705	.000					
5	9.434	9.849	9.274	10.050	.000				
6	8.888	9.434	9.695	12.124	8.944	.000			
7	7.141	5.916	9.165	10.724	9.798	8.832	.000		
8	6.557	8.660	10.000	11.269	6.928	6.633	8.124	.000	
9	9.000	9.644	5.099	11.705	10.296	9.899	10.296	9.381	.000

Iteration history for the 2 dimensional solution (in squared distances)

Young's S-stress formula 1 is used.

Iteration	S-stress	Improvement
0	.28490	
1	.25996	
2	.24497	.01499
3	.24102	.00395
4	.23960	.00142
5	.23910	.00050

Iterations stopped because
S-stress improvement is less than .001000

Stress and squared correlation (RSQ) in distances
RSQ values are the proportion of variance of the scaled data (disparities) in the partition (row, matrix, or entire data) which is accounted for by their corresponding distances.
Stress values are Kruskal's stress formula 1.

Matrix	Stress	RSQ	Matrix	Stress	RSQ
1	.200	.820	2	.194	.837

Averaged (rms) over matrices
Stress = .19703 RSQ = .82875
Configuration derived in 2 dimensions

Inference

The RSQ and Kruskal's Stress index measure the goodness of fit of the solution **(Kruskal, 1964)**. The thumb rule for RSQ is "1", and any value closer to 1 represents the strength of the information. **For a CMDS construction, the desired combination is a high RSQ value together with a low stress value (Spence & Ogilvie, 1973)** . In this case, Matrix 1 reveals a stress value of 0.200, and RSQ of 0.820; Matrix 2, 0.194 of stress and 0.837 0f RSQ; while the averaged values show 0.19703 and 0.82875 respectively. This indicates a strong and good fit on both the dimensions. In addition, we are provided with stress and r-squared values for each matrix as well as an averaged table.

Output – 2

Output showing the configuration of Stimulus Coordinates

The table shows the Stimulus coordinates on each dimension. The coordinates of each competency are used to create the plots in the combined map or "**group space".** The computer algorithm uses the group space coordinates to plot the competencies accordingly. The dimensions used by up to 35 years above 36 years help to differentiate between the competencies stimuli. The Stimulus Coordinates gives us a display of the weights of each competency within the two dimensions. The competencies "Communication" and " Technical Skills" weigh heavily on Dimension 1, while the competencies "Planning Ability", "Networking" and "Achievement Orientation" rate highly on Dimension 2.

The **Group Space** is got by equally treating the two segments of respondents, as they have an equal importance in devising the group space. **It is important to note here that CMDS will give more emphasis to whichever segment of the age group has the larger sample**.

Subject weights and Weirdness Index

The weirdness index reflects the atypicality of n individual's/segment's space. Subject weights measure the importance of each dimension to each subject. The squared weights sum to r-squared. The weirdness index is designed to help in the interpretation of subject weights and its values range between 0 (wherein the subjects with weights are proportionate to the average weights) and 1, (where a subject has only one positive weight). Any researcher should be concerned when the weirdness rate approximates 1 since it implies that the weights are unusual or "weird", as the subject uses one of the dimensions in the analysis. Any subject with one large weight and many low weights or with only one positive weight has a weirdness of 1.

A common mistake in the subject weights is to view the distances between the subject points instead of interpreting the angle between the subject vectors. Due to this misinterpretation, SPSS calculates flattened weights. Basically as weight vectors become flattened, they become weight points. These weights are calculated by normalizing each subject's weights so that their sum is 1. Instead of a two dimensional space, flattened weights become one dimensional. MDS allows a researcher to "uncover the hidden structures of data bases" (**Kruskal and Wish, 1978:5).**

Inference

The Weirdness table shows values of .0902 and 0.0937 on Dimensions 1 and 2 respectively on an overall basis, which are inclined to 0, indicating that both the subjects have two dimensional solutions.

Stimulus Coordinates

Dimension

Stimulus Number	Stimulus Name	1	2
1	prevntsc	-.1146	-.3675
2	proffsnl	.4800	.2550
3	decisnmk	1.3267	-.1431
4	technclk	-2.1792	-1.6844
5	plngabil	-.4031	1.4816
6	peerbeha	.5373	1.0515
7	acvmntor	-.3928	.4545
8	netwrkgl	-.4528	.4473
9	miscreli	1.1986	-1.4949

Subject weights measure the importance of each dimension to each subject.
Squared weights sum to RSQ.
A subject with weights proportional to the average weights has a weirdness of zero, the minimum value.
A subject with one large weight and many low weights has a weirdness near one.
A subject with exactly one positive weight has a weirdness of one,
the maximum value for nonnegative weights.

Subject Weights

Subject Number	Weird-ness	Dimension 1	Dimension 2
1	.0902	.7042	.5693
2	.0937	.7829	.4737

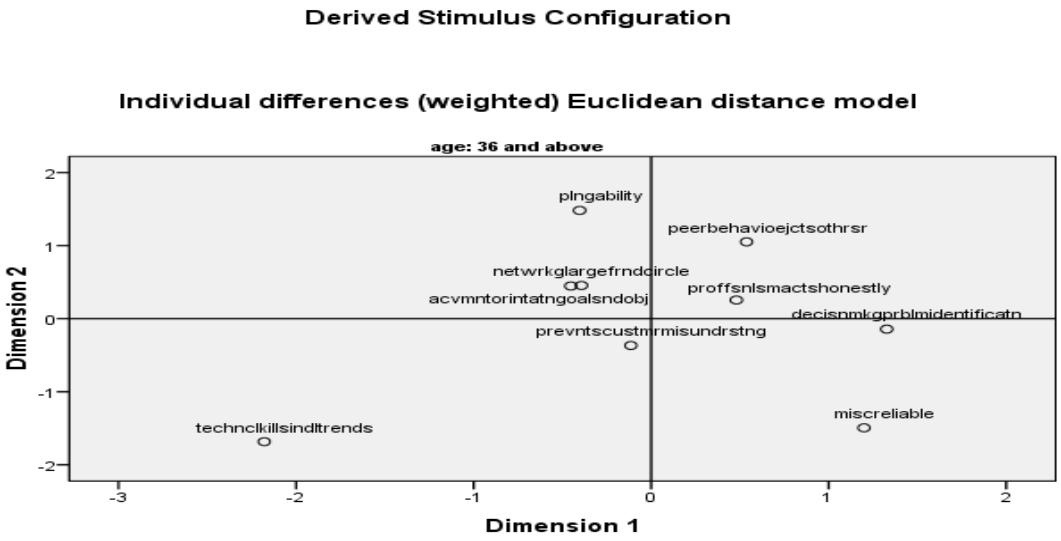
Overall importance of each dimension: .5545 .2743

Flattened Subject Weights

Subject Number	Plot Symbol	Variable 1
1	1	-1.0000
2	2	1.000

The Perceptual Map

The Perceptual Map represents the aggregated results (joint assessments of many individuals) explains the similarity ratings between the two items in each pair. The higher the number stands evidence to similar perceptions of the two items by the respondents.



Inference

From the grid it is seen that the competency "Technical Skills" is perceived to be similar to "Communication" competency and they both remain at fairly alone on Dimension 1 as it appears that the Dimension tends to pull them somewhat apart. This point is further reiterated with the help of the values of **"Technical Skills" (-2.1792)** and **"Communication" (-.1146)**. But the same w.r.t. "Planning; Networking and Achievement Orientation" is distinctly different. Thus it is inferred that the respondents as a group have perceived "Technical Skills" fits "Communication" better than the other 3 bundled competencies. A **clumping of the competencies** "Planning Ability", "Networking" and "Achievement Orientation" is also seen along Dimension 2. This Dimension tends to pull the cases close together. **Rathod(1981)** has opined that the structure is inherent in the grid and does not depend wholly on the analysis. This is substantiated with the corresponding values of **"Planning Ability", "Networking" and "Achievement Orientation"** competencies being **1.4816; 0.4473 and 0.4545** respectively. The said values are as referred from the stimulus coordinates. Similarly the competency "Leadership" is correspondingly perceived as the competency "Decision Making". But to the contrary, the competencies "Professionalism" and "Peer Behavior" have been perceived differently. Here too the competencies seem to be apart from each other in the said Dimension. However, the dimensions shown can only be hypothesized while using this method.

Weight Space

The Weight space by the stimulus coordinate is calculated by applying the Euclidean Distance Formula, which measures the distance between two points in the plane with coordinates (x,y) and (a,b) given by applying the following formula:-

Distance (x,y), (a,b) =$\sqrt{(x-a)2+(y-b)2}$

Calculations for the competency "Communication"

Up to 35 years

Weirdness values of D1 = 0.7042; D2 = 0.5693

√0.7042 = 0.8392; √0.5693 = 0.7545

D1 = 0.8392 x -0.1146 = -0.0962
D2 = 0.7545 x -0.3675 = -0.2773

More than 36 years

Weirdness values of D1= 0.7829; D2 = 0.473
√0.7829 = 0.8848; √0.473 = 0.6883
D1 = 0.8848 x -0.1146 = -0.104
D2 = 0.6883 x -0.3625 = -0.2495

Similar calculations have been carried out for each of the remaining 8 competencies in their respective Dimensions, and for each of the age groups. Such calculations are shown in the table below:-

Table showing the values of weight spaces

Competencies	Age up to 35 years		Age over 36 years	
	Dimension 1	**Dimension 2**	**Dimension 1**	**Dimension 2**
Comm	-0.0962	-0.2773	-0.1014	-0.2475
Profl	0.4028	0.1924	0.4247	0.1755
DM	1.134	-0.1080	1.1739	-0.0985
TS	-1.829	-1.2709	-1.9282	-1.1594
PA	0.3383	1.1180	0.3567	0.7903
PB	0.4509	0.7934	0.4754	0.7237
AO	-0.3296	0.3429	-0.3475	0.3128
NW	-0.3780	0.3375	-0.4006	0.3079
LS	1.006	-1.1279	1.0605	-1.0289

Source: Computed

(Comm – Communication; Prfl- Professionalism; DM- Decision Making; TS- Technical Skills; PA- Planning Ability; PB- Peer Behavior; AO- Achievement Orientation; NW- Net Working; LS- Leadership)

The values in the table containing weight spaces are used to calculate the distances between the different pairs. The calculations using the Euclidean formula explained earlier are carried out as under:-

Communication and Professionalism

Age up to 35 years

D1 = √square of (-0.0962 – 0.4028) + square of (-0.2773 -0.1924)
= √0.2490- 0.2206
= √0.4696
= 0.6853

Age more than 36 years

D2 = √square of (-0.1014-0.4247) + square of (-0.2495-0.1755)
= √square of (-0.5261)+ (-0.425)
= √0.4574
= 0.6763

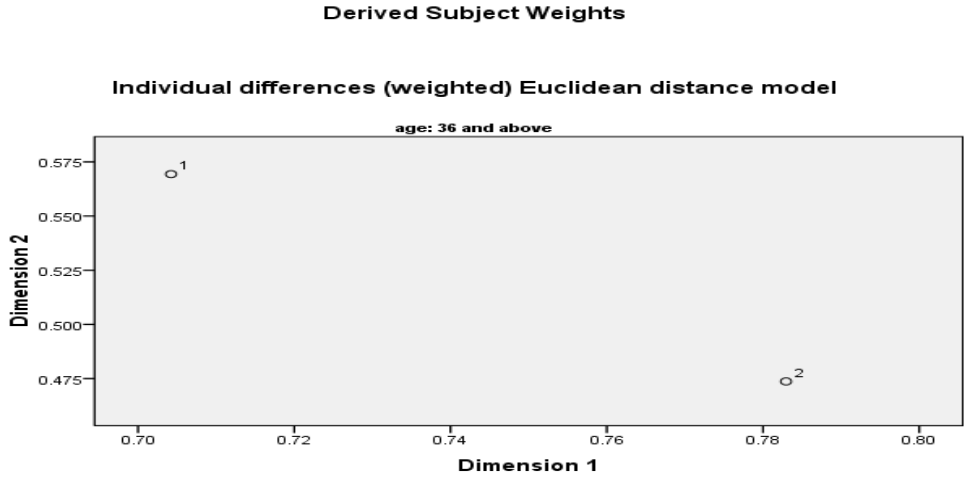
Similar calculations were carried out to determine the distances between each competency namely, communication and decision making; and technical skills; and planning ability; and peer behavior; and achievement orientation; and networking and leadership for both age classifications. Calculations were carried out between each of the other competencies – for (eg) professionalism and decision making etc were also done to identify the distances between them and are finally tabulated as under:-

Table showing the distances between the competencies

Pair of Competencies	Distance up to 35 years	Distance more than 36 years
Comm and proflism	0.6835	.6763
Comm and DM	1.22141	1.2842
Comm and TS	1.4162	2.0409
Comm and PA	0.5516	1.0707
Comm and PB	0.6629	1.1283
Comm and AO	1.9695	0.6138
Comm and NW	0.6763	0.6326
Comm and LS	1.3922	1.3991
Prfl and DM	0.7904	0.7977
Prfl and TS	2.6687	2.7052
Prfl and PA	1.1857	0.9943
Prfl and PB	0.6029	0.5505
Prfl and AO	0.7477	0.7843
Prfl and NW	0.7492	0.8358
Prfl and LS	1.4516	1.3619
DM and TS	3.1639	3.2780
DM and PA	1.900	1.7699
DM and PB	0.9533	1.0788
DM and AO	1.1512	1.5760
DM and NW	1.5533	1.6261
DM and LS	1.0255	0.9373
TS and PA	2.8158	2.5040
TS and PB	3.0756	3.0530
TS and AO	2.2029	2.1600
TS and NW	2.1662	2.1182
TS and LS	2.8386	3.7040
PA and PB	0.8533	0.8347
PA and AO	0.7750	0.4776
PA and NW	0.7815	0.4844
PA and LS	2.6175	2.6754
PB and AO	0.9012	0.9198
PB and NW	0.9460	0.9697
PB and LS	1.9990	0.8274
AO and NW	0.0483	0.0531
AO and LS	1.6189	1.945
NW and LS	2.0157	1.9804

Source: Computed

(Comm – Communication; Prfl- Professionalism; DM- Decision Making; TS- Technical Skills; PA- Planning Ability; PB- Peer Behavior; AO- Achievement Orientation; NW- Net Working; LS- Leadership)

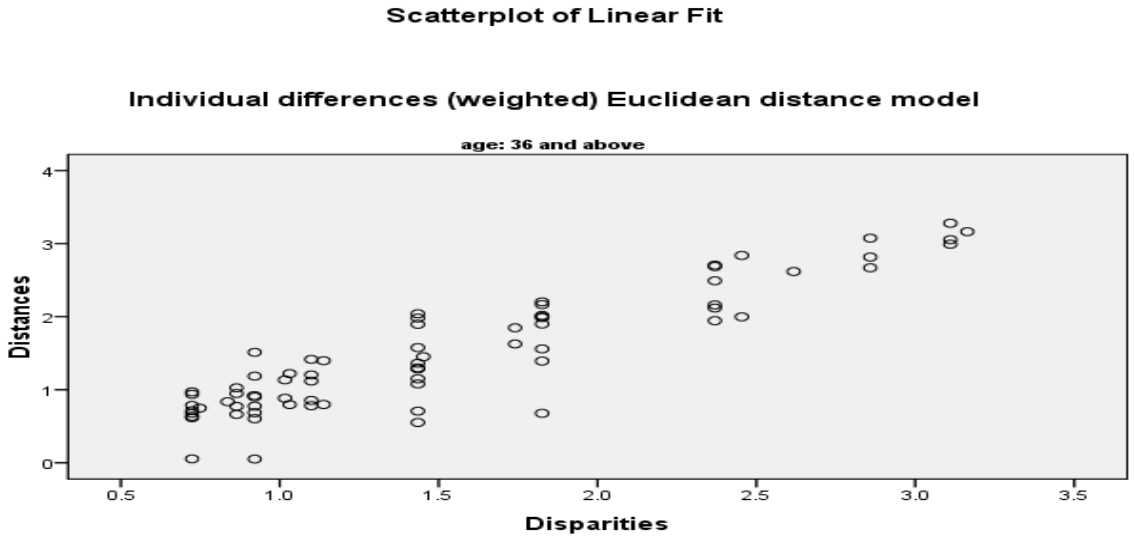


Scatter Plot

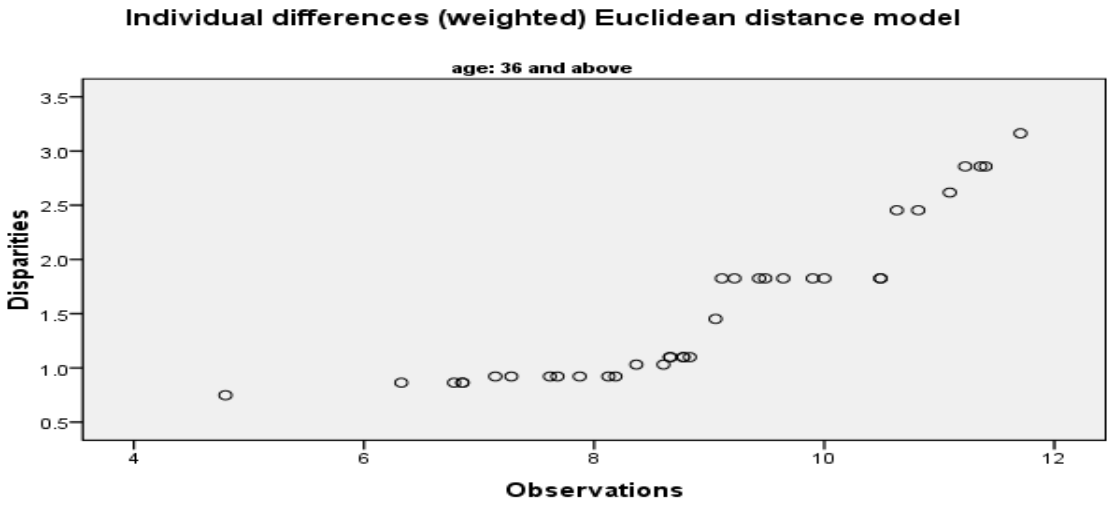
The Euclidean distance formula is normally used for determining the "straight line" distance between the pairs. The "scatter" of the objects along a diagonal line running from the lower left to the upper right helps to assess the fit of the data to the distances. The disparities and distances will show a straight line of the points in the event of an ideal/perfect /good fit and diverge from the straight line on the contrary. Similarly in the case of stress levels, the points are close to the straight line in case of a low level and vice versa. The scatter of the objects show a worst fit/not good/imperfect fit.

Inference

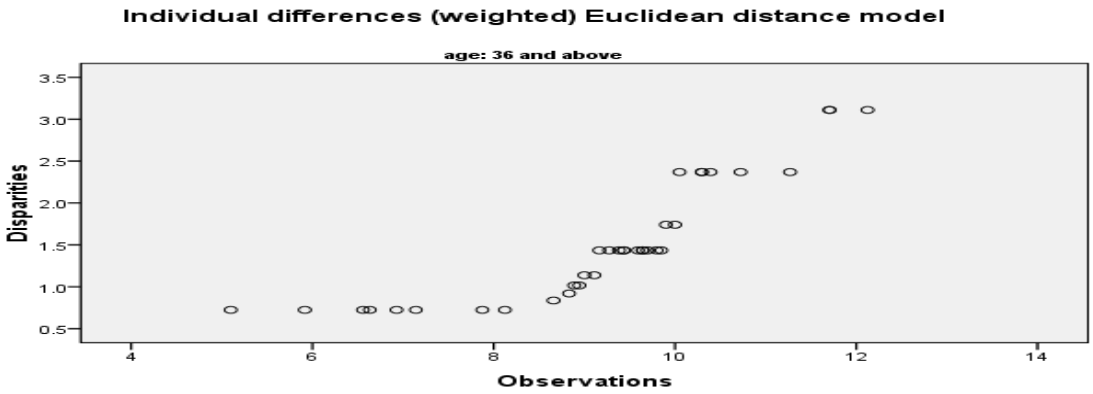
The scatter plots below show that some of the competencies are closely knit while some others are scattered. But on an overall basis, it is seen that a nearly good fit is seen from the scatter plot. This shows that there is a close relationship between the competencies in question.



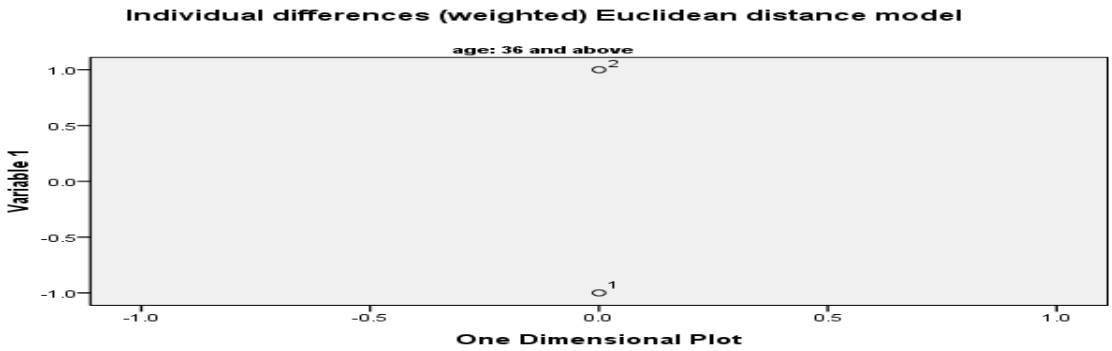
Transform Scatterplot of Subject 1



Transform Scatterplot of Subject 2



Flattened Subject Weights



Karl Pearson's R correlation

A simple Pearson's R correlation was calculated between the two age groups – up to 35 years and above 36 years. If the R value is high, it is concluded that the two spaces (<35 years and >36 years) are comparable. O the contrary, a low R value indicates a high difference between the two matrices (**Epting et al, 1992).**

Correlations

		below35yrs	above35yrs
below35yrs	Pearson Correlation	1	.898**
	Sig. (2-tailed)		.000
	N	36	36
above35yrs	Pearson Correlation	.898**	1
	Sig. (2-tailed)	.000	
	N	36	36

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

Inference

From the Correlation table it is seen that the **R value is 0.898** which is closer to 1. This signifies a strong correlation between the two age groups in question. The **significance value is also 0.000** which emphasizes perfect significance between the age groups. In this case N=36 denotes the number of pairs of distances between the nine competencies.

Important Findings and Interpretations

1. The respondents find that both the technical skills they have and communication they have is crucial for their job performance irrespective of their age.
2. Communication includes oral, written, presentation and negotiation skills that are the basic skills required for bank employees to discharge their duties effectively.
3. Only when the communication competency is strong, it will manifest in the form of strong technical skills that are a crucial prerequisite for taking the bank forward in terms of novel products and marketing.
4. Planning, achievement orientation and networking competencies help the bank employees in their routine discharge of their duties.
5. Networking among both the employees and the customers adds to the success quotient of the private sector banks.
6. Bank employees perceive peer behavior and professionalism synonymously.
7. When a bank employee conducts himself well within his group, his professionalism is reflected. This equips him with the capacity to handle any challenges that may crop up in the course of banking business.
8. The leadership and decision making competencies of the respondents go hand in hand.
9. Both the above said competencies are normally inseparable and hone the latent managerial capacities of the bank employees.

Suggestions

1. Periodical training may be imparted to ensure that the employees get updated with the economic, fiscal and market trends.

2. Challenging situations may be posed to the employees so that they use their latent skills to overcome the same.
3. A crash course on Soft skills may be designed and applied to scale up communicative competencies.
4. Employees to be encouraged to handle difficult and trying situations that help him to use his leadership and decision making competencies.
5. The banks to motivate their employees by recognizing their efforts and contribution either in the form of monetary or non monetary measures.
6. Periodical meetings with the employees at the branch level will help air any problems and redress the same.
7. Star performers may be appreciated in the presence of the customers for the betterment of the employee morale.
8. The bank's vision, mission and values to be re-iterated during these meetings to enhance the commitment factor.
9. Foreign assignments or tours or trainings may be kept in the pipeline for competent employees.

Conclusion

It is obvious from the above discussions that the present banking scenario is very challenging and demanding on the bank employees in general and private bank employees in particular. Hence it is imperative that the bank employees are equipped with competencies that match the industry, competitor and customer expectations. Higher officials to devise means and methods to bring out the best among the employees. The efforts to be directed to ensure that their competencies surface with trying challenges. It may aptly conclude that the bank employees are the backbone to any bank and their performance plays a predominant role in keeping the bank afloat.

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