

RECRUITMENT AND SELECTION TECHNIQUES IN MANUFACTURING AND SERVICE ORGANIZATIONS OPERATING IN INDIA

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Abstract Primary data based on 426 respondents were analyzed to compare the recruitment and selection techniques being practiced by Manufacturing and Service organizations operating in India. For the analysis of the data, statistical tools such as latent trait model, percentages, means and standard deviations were used. This study explored that recruitment and selection practices vary across industrial sector in India. Service companies use recruitment methods more vigorously in comparison to Manufacturing companies. The most practiced recruitment methods in Manufacturing companies are direct applicants, placement consultants, employee referrals and company websites. At the same time, recruitment methods adopted by Service companies are employee referrals, job portals, temporary staffing, head hunting, advertisement in newspapers and company websites. When it comes to selection, methods found to be applied in Manufacturing companies are written tests and general interview. In case of Service companies, the methods are written tests and tests on specific skills. Implications and limitations of the study were also discussed.

Keywords: Recruitment, Selection, HRM, India, Manufacturing Companies, Service Companies, Latent Trait Model.

Given the war of talent due to globalization all over the world, organizations that successfully attract quality applicants and are more selective in their hiring decisions achieve a huge competitive advantage over their rivals (Michaels et al., 2001). Knowing that it is the people inside organizations who develop products and processes, make decisions, and execute programs, human resources are vital to the success of an organization. In countries with tight labor market, HR professionals face immense pressure to find qualified candidates quickly so as to contribute directly to organization's bottom-line; however, they lack the time to establish such new and efficient recruiting and selection programs (Ryan and Tippins, 2004). It has become essential for an organization to create a sound recruitment and selection strategy that can act as a key differentiator in corporate success. A number of countries in today's global economy are facing serious shortages in their labour market, arising not only from exceptional demographic shifts but also from a lack of individuals with the required skills (Manpower

Inc., 2006). It has been found that companies operating in India are facing attrition ranging from 15% to 40%. Such a high level of turnover compels employers to replace about one third of their workforce every year (Holtbrugge et al., 2010). This pattern of high turnover, coupled with a shortage of talented candidates, implies that companies must ensure that they are doing their best to attract and retain top talent.

The purpose of the present study is to investigate the recruitment and selection practices utilized in Indian organizations operating within manufacturing and service sector. It is well known that good staffing practices are necessary for the organizations to get employees with sound academic qualifications, knowledge, skills and attitude. Also, many a firms agree that carefully used recruitment and selection practices result in higher productivity rates from new employees. It is, therefore, important to know recruitment and selection practices used frequently by various organizations in India. In order to analyze the recent

developments in recruitment and selection, this paper starts with a brief discussion of the present staffing policies and practices implemented in labor market all over the world. Then recruitment and selection in manufacturing and service sector, as reported by a number of studies, is reviewed before the findings of the study are presented and discussed.

1. OBJECTIVES OF THE STUDY

The main objective of the study was to examine the recruitment and selection techniques being practiced in the firms operating in India. The following were set as sub objectives:

1. To assess the differences in adoption of recruitment practices/techniques between Manufacturing and Service companies operating in India.
2. To assess the differences in adoption of selection practices/techniques between Manufacturing and Service companies operating in India.

2. LITERATURE REVIEW

Recruitment and selection is an essential component for the success of an organization. Knowledgeable and skilled workforce definitely constitutes a potential source of competitive advantage for an organization (Khandekar and Sharma, 2005). According to Beer et al. (1984), an organization does not obtain and retain the human resources to achieve the strategic goals only, but also it has noteworthy impact upon the workforce composition, the fit with the organization's needs and culture, and ultimately upon long-range employment stability. While knowing the significance of recruitment and selection, it is unbelievable that little research has been conducted in determining best employer's recruitment and selection strategy.

Matching the capabilities of potential candidates against the demands inherent in a given job is the main focus of staffing practices in an organization (Montgomery, 1996). These days, employers, regardless of organisation size or activity type, tend to use more sophisticated, objective and cost-effective methods of recruitment and selection than before. Recruitment and selection in the UK has become more person-related than job-oriented (Branine, 2008). According to Sackett and Lievens (2008), no common procedure is still established that can tell how to recruit and select employees because different organizations practice different recruitment and selection methods depending on their operations, size and needs.

As the first stage of staffing process, the recruitment of quality applicants is vital to an organization's success (Ployhart, 2006). According to Dineen and Soltis (2011), the main purpose of recruitment process is to strike the equilibrium between an adequate supply of qualified talent

and restricting the costs associated with generating too many or unqualified applicants. In absence of efficient planning systems, organizations may recruit the wrong type and number of persons and in absence of effective recruitment, organizations may end up selecting people who are not best in the talent market. According to Ullman (1966), recruitment techniques can be identified as being either formal or informal. In the literature, recruitment techniques such as newspaper advertisements, job centres and employment agencies are considered as formal whereas techniques like "word of mouth" by existing employees, also known as "referrals" are examples of informal recruitment techniques (Taylor, 1994). It has been found that informal recruitment techniques generate workers who stay with the organization longer than those recruited by other techniques (Breaugh, 1981).

Fein (1998) has opined that variation can be seen in adoption of staffing practices according to sector/industry, with the information technology and engineering sectors responding more favorably to high tech recruitment methods over consumer products and the manufacturing sectors that still prefer low tech recruitment methods. Similarly, Scott et al. (1989) have also shown that recruitment methods vary according to the industry. Informal methods are preferred in the services and traditional manufacturing sector. However, formal methods are used widely in high technology sector. In a study of five software companies operating in India, Rao (2010) has identified internal recruitment, employee references, succession planning, interviews, personality tests, newspaper recruitment, professional search agencies, and bio-data as predominant senior-level staffing practices. Hsu and Leat (2000) study has highlighted that internal recruitment methods such as promotion from- within, transfers and job rotations are commonly used by manufacturing firms in Taiwan whereas recruitment consultants and executive search consultants (the external recruitment methods) have not yet been commonly adopted there. The use of internet recruiting tools has been on rise these days (Anderson, 2003). Parry and Tyson (2008) have explored that online recruitment methods are more suitable for knowledge workers and middle management and are less appropriate for blue-collar jobs or very high-level management. It seems that use of online recruitment methods remains more prevalent in service organizations.

Substantial growth in understanding of selection methods has been made in recent years. Though, historically employee selection methods in India have been determined by nepotism, social contacts and caste (Budhwar and Boyne, 2004), but in recent years, a shift has been seen towards psychometric, talent-based selection methods (Pio, 2007). Generally, selection methods available to organizations are characterized along a continuum that ranges from more traditional methods such as interviews, application forms

and references, through to more sophisticated ones that summarize aptitude tests, assessment centres, work samples, psychological testing, and so forth. Wilk and Cappelli (2003) are of the opinion that organizations use various kind of selection methods depend upon the nature of the work being done (skill requirements), training, and pay level. König et al. (2010) study of 506 HR professionals has put forward a number of variables that can determine the use of selection methods and these are: the methods' diffusion in the field, legal problems associated with the methods, applicant reactions to the methods, their usefulness for organizational self-promotion, their predictive validity, and the costs involved.

The traditional micro perspective on selection put more emphasis on assessment devices such as structured interviews, cognitive ability tests, and personality inventories for gathering information about applicants (Guion, 1992). Hsu and Leat (2000) are of the opinion that application forms, knowledge or skill tests and one-to-one and panel interviews seem to be used most often by manufacturing firms in Taiwan. Psychometric tests and assessment centres appear to be used least. A comparative study of six countries by Anderson and Witvliet (2008) reveals interview as one of the most popular selection methods. Jusoh and Kok Ai (2002) have explored that the common selection steps such as preliminary interview, review of applicants and resumes, selection interview and final selection are highly used in selecting managers for Malaysia's manufacturing organizations.

3. RESEARCH METHODOLOGY

To achieve the objectives of the study, the following research methodology is applied:

Table 1: Distribution of the Sample

Variables	Categories	Number	%
Organizations	Manufacturing	80	63.4
	Service	46	36.6
	Total	126	100.0
Managers	Manufacturing	272	59.6
	Service	154	40.4
	Total	426	100.0

3.1. The Sample

Primary data based on 426 respondents (HR managers and non HR managers) from 126 companies was analyzed. The distribution of the sample can be seen in Table 1 and characteristics of the sample are displayed in Table 2.

Table 1 showed that the sample included Manufacturing (63.4%) and Service companies (36.6%); further, percentage of managers in Manufacturing companies was (59.6%) and in Service companies, it was (40.4%).

Table 2 showed that the observations recorded in the sample were related to males (81.8%) and females (18.2%) managers/employees. Out of the entire sample, 84.5% employees/executives were married. Average age of the respondent employees/executives was 35.5 years ($SD=\pm 7.123$). Further, most of the managers fall in the age category of 26-30 years (28.6%) and 31-40 years (34.3%). Out of the total sample, 42.06% were Indian organizations and 57.94% were MNCs. 54.0% were HR managers and 46.0% were non HR (line) managers. Average total work experience of the managers in the corporate sector was 10.93 years ($SD=\pm 7.359$), whereas average work experience in the present company was 5.47 years ($SD=\pm 5.304$).

3.2. The Measure

For this study, in addition to general information about the respondents and the organizations, two measures were developed i.e. one for recruitment methods and other for selection methods. All the statements in both the measures were of dichotomous nature. The existing literature and dossiers guide us to identify the indicators of recruitment and selection methods adopted by the companies working in India. For the measure for recruitment, eight items i.e. direct applicants, placement consultants, job portals, employee referrals, through temporary staffing, head hunting, advertisement in newspapers and maintaining corporate websites are selected (Wickramasinghe, 2007; Arthur, 2008). In case of selection methods, five items i.e. written tests, test on specific skills, psychometric tests, general interview and technical interview are considered (Ryan et al., 1999; Wickramasinghe, 2007; Arthur, 2008). For all items/statements contained in both the measures, the respondents were required to say 'yes' if the respondent agreed about the method as being followed by the organization. Similarly, if the respondent did not agree over the statement, he was required to say 'No'. The weight to the 'yes' response was given '1' and to 'no' response was given '0'.

3.3. Statistical Methods

To identify the major dimension of responses of items, the study has employed the Latent Trait Model (Moustaki, 1996; Bartholomew et al., 2008). The Latent Trait techniques work in the same spirit as of factor analysis to identify the regularity in the data created by latent variables. If the variables are measured on a metric scale (discrete or continuous), the past researches guide us for obvious choice of factor analysis or

Table 2: Characteristics of the Sample

Variables	Categories	Average	Number	%
1. Gender	Male		346	81.8
	Female		80	18.2
	Total		426	100.0
2. Marital status	Married		366	84.5
	Unmarried		60	15.5
	Total		426	100.0
3. Age	Under 25 years.	35.5	34	8.0
	26-30 years	(SD =7.123)	122	28.6
	31-40 years		146	34.3
	41-50 years		94	22.1
	51-60 years		30	7.0
	Above 60 years		0	0
	No Response		0	0
	Total		426	100.0
4. Organizations	Indian		53	42.06
	MNCs		73	57.94
	Total		126	100.0
5. Designation	HR		230	54.0
	Line		196	46.0
	Total		426	100.0
6. Work Experience	Corporate Sector	10.93		
	Present Company	5.47		
		(SD =7.359)		
		(SD =5.304)		

Source: *Primary Survey*

its variants for the purpose. In a typical factor model, it is assumed that the observed variables (x_1, x_2, \dots, x_p) are metrical and can be put as a function of latent variables (f_1, f_2, \dots, f_q) and residual (e_i). This type of model can be written as:

$$X_i = \alpha_{i0} + \alpha_{i1}f_1 + \dots + \alpha_{iq}f_q + e_i \quad (i=1,2,\dots,p)$$

Here it is assumed that f_i are normally distributed i.e. $f_i \sim N(0,1)$ and e_i is also behave as $e_i \sim N(0,1)$. Since f_i and e_i can take any value and are independent of each other, x_i can also take any value. If the variables (x_i) of survey data are measured on a binary scale where it cannot assume any possible value of metric scale, then such linear factor model is no more remain valid for data reduction. Here, the problem is to identify the link function which can generate

the dichotomous values for given latent variables. For such type of situation in recent past, statisticians have developed logistic function as a link function. Similar to factor analysis in case of binary variables (x_i), the expected value of x_i given the f_s can be written as:

$$P_r(x_i=1/f) = \pi_i(f)$$

Where $\pi_i(f)$ is the conditional probability that binary variable x_i equals one given the values of the q latent variables f_1, f_2, \dots, f_q represented by f vector. The function which measures relationship between x_i and f is known as link function.

In case of latent trait model, this link function is to determine

the latent variables underlying the interrelationship between binary variables is based on logistic regression model. It can be specified as:

$$\log \Pi_i(\mathbf{f}) = \log_e \frac{\Pi_i(\mathbf{f})}{1 - \Pi_i(\mathbf{f})} = \alpha_0 + \alpha_1 f_1 + \dots + \alpha_q f_q \quad \text{where } i = 1, 2, \dots, p$$

Where the left hand side is a probability that takes values between 0 and 1 and the right hand side is not restricted in any way and can take any real value.

A latent variable model attained goodness of fit when the latent variables account for most of the association among the observed responses. To measure it, there are mainly three ways which are discussed briefly as follows:

- (i) Global goodness-of-fit test: This test is used in the spirit of conventional approach of measuring the gap between the observed and expected frequencies across the response pattern. These discrepancies are aggregated in the form of G^2 -statistic which is one of the variant of log-likelihood-ratio test, and takes the form as defined below:

$$G^2 = \sum_{r=1}^{2^p} O(r) \log_e \frac{O(r)}{E(r)}$$

Where r represents a response pattern, and $O(r)$ and $E(r)$ represent observed and expected frequencies respectively of response pattern.

An alternative of it is to use the Pearson chi-squared goodness-of-fit test statistic χ^2 given as:

$$\chi^2 = \sum_{r=1}^{2^p} \frac{(O(r) - E(r))^2}{E(r)}$$

with degree of freedom $(2^p - p(q+1) - 1)$, where 2^p is the number of different response patterns.

q = number of parameters = category of responses.

- (ii) Goodness-of-fit for margins: Under this criterion, the fitness of the model is judged at margin level by constructing the contingency table of responses of two variables. The cells of contingency table are tested for difference in observed frequency and expected frequency by using χ^2 test. The closeness of these values indicates the fitness of the model which is also reflected in the lower value of chi-square statistic. As a rule of thumb, if χ^2 statistic has value greater than 4, then it implies poor fit. The individual margins criterion provides the information about where the model does not fit.
- (iii) Properties of G^2 explained: it measures the explanatory power of the model at aggregate level by quantifying what extent the model explains the observed behavior

on the scale lies between 0 to 1. It is defined as:

$$\%G^2 = \frac{G_0^2 - G_q^2}{G_0^2} \times 100$$

Where G_0^2 is the log-likelihood-ratio statistic, measuring the association between $x_s(x_1, x_2, \dots, x_p)$. The log-likelihood-ratio statistic G_q^2 , for the model with q latent variables is the measure of the residual association between the x_s which has not been explained by the model. More its value close to one better is fitness.

4. RESULTS AND DISCUSSION

Latent trait model is applied on the primary data collected for the purpose to investigate the response pattern and most likely responses regarding recruitment and selection techniques. The results are presented in Table 3 and Table 4 regarding recruitment methods and in Table 5 and Table 6 regarding selection methods. These results are explained in the following two parts:

4.1. The Recruitment Methods

In Table 3, the results are presented mainly in two columns for the given data sets i.e. data set for Manufacturing companies and data set for Service companies and figures given in last row represent the fitness of the model. Columns related to sample frequency consist of relative frequency of responses of 'yes' in overall sample, and the frequency of 'no' response can be derived from the overall sample by subtracting yes proportions.

For aggregate data and in its subgroups i.e. Manufacturing and Service companies (Table 3), all the items have 'yes' responses in majority, but having variations within the same set and across the set. It indicates that in India, all the companies, in general, are using all the recruitment methods, but these are not equally prevalent or practiced. The recruitment methods like placement consultants, employee referrals, direct applicants and job portals are heavily used in all the organizations, the same is true for Manufacturing and Service companies also. Further, Service companies can be distinguished from others for using recruitment methods such as temporary staffing, advertisement in newspapers, head hunting and maintaining company websites more frequently.

Now a days, companies operating in India are working under the environment characterized by economical wide spread information technology, market oriented economy and policy environment intended to provide equal level playing field. Under this type of common environment the interrelationship between item responses is obvious. To

determine and estimate the most likely chances of responses under common business environment, latent trait model is employed on the observed data. The results derived from the model are presented in terms of median probability placed in adjoining column of sample frequency. The median probability may be interpreted as most likely chances of getting response. These probability figures are also known by name transitional probability of responses.

A perusal of table 3 indicated that advertisement in newspapers ($P_{01}=0.882$) and temporary staffing ($P_{01}=0.886$) for aggregate data set, temporary staffing ($P_{01}=0.613$), head hunting ($P_{01}=0.732$), advertisement in newspapers ($P_{01}=0.639$) and job portals ($P_{01}=0.828$) for Manufacturing companies data set are less likely to be answered positively by median individuals or randomly selected 50% individuals. These figures are also used to know the recruitment method that creates inequity between the responses in the system. The higher value of median probability indicates more likely chances of getting positive responses for given recruitment indicators under common economic environment/factors in relation to sample frequency. In this way, the most practiced recruitment methods in Manufacturing companies are direct applicants ($P_{01}=0.919$), placement consultants ($P_{01}=0.906$), employee referrals ($P_{01}=0.914$), and company websites ($P_{01}=0.910$). In contrast, Service companies are practicing recruitment methods more aggressively in the form employee referrals ($P_{01}=1.000$), job portals ($P_{01}=0.999$), temporary staffing ($P_{01}=0.990$), head hunting ($P_{01}=0.990$), advertisement in newspapers ($P_{01}=0.998$) and company websites ($P_{01}=0.999$). Further, in Service companies, relatively less practiced recruitment methods are direct applicants ($P_{01}=0.963$) and placement consultants ($P_{01}=0.969$). But these methods are more used in Service companies than Manufacturing

companies. It is further derived from table 3 that Service companies are embracing almost all recruitment methods comparatively more than Manufacturing companies. Surprisingly, Manufacturing companies have revealed the tendency of using some recruitment methods very less i.e. temporary staffing, head hunting and advertisement in newspapers.

The results of estimated latent trait model applied on recruitment methods are tested for its goodness-of-fit at aggregate level and at marginal level; the last row of table presents the %G values of the model showing the percentage of correct responses reflected by the model at aggregate level. Table 4 exhibits the details of response pattern and observed vs. expected behavior of the responses. It shows that most of the categories of responses having frequency below 5, which makes the model difficult to compute the fitness criteria in terms of χ^2 statistic with positive degree of freedom. But on marginal level, where we construct the contingency tables of responses for given items, it is found the model is well fit in the given data and majority of computed values of chi-square are below 4. The figures in third column of each data set (i.e. all, MNCs and Indian companies) of Table 4 are consistent with our findings, where majority of response pattern is yes to all the items.

The results so far demonstrate that the firm either belongs to Manufacturing or Service sector wants to utilize more of all the methods of recruitment in relation to observed behavior. Being operating in a country like India, who is distinct in terms of vast population and duality regarding the access to information, the firms here are motivated to adopt several methods of recruitment to tap the desired talent. On taking into mind this kind of background, temporary staffing and advertisement in newspapers can be taken as discriminating

Table 3: Sample Responses and Most Likely Responses Regarding Recruitment Techniques

ITEMS	All Data Set (N= 426)		Manufacturing (N= 272)		Service (N= 154)	
	Sample Frequency	Median Probability	Sample Frequency	Median Probability	Sample Frequency	Median Probability
		P(X=1/Z=0)		P(X=1/Z=0)		P(X=1/Z=0)
Direct applicants	0.831	0.996	0.794	0.919	0.896	0.9631
Placement consultants	0.906	0.938	0.897	0.906	0.922	0.9688
Job Portals	0.812	1.000	0.779	0.828	0.87	0.9991
Employee Referrals	0.878	0.959	0.824	0.914	0.974	1.000
Through temporary staffing	0.634	0.886	0.529	0.613	0.818	0.990
Head Hunting	0.709	1.000	0.647	0.732	0.818	0.990
Advertisement in Newspapers	0.662	0.882	0.559	0.639	0.844	0.9981
Maintaining company website	0.784	0.969	0.735	0.910	0.87	0.999
% OF G-SQUARE EXPLAINED	-----	67.082	-----	39.819	-----	77.583

Table 4: Response Pattern regarding Recruitment Methods

All Data Set (N= 426)			Manufacturing (N= 272)			Service (154)		
OBS.	EXP.	RESPONSE PATTERN	OBS.	EXP.	RESPONSE PATTERN	OBS.	EXP.	RESPONSE PATTERN
226	209.568	11111111	104	83.585	11111111	122	93.414	11111111
12	1.824	01100100	12	1.12	01100100	4	1.734	11110000
8	2.969	11110100	8	2.906	11110100	4	0.298	10010010
4	0.688	00110101	4	0.24	00110101	4	0.913	01110000
12	3.462	11110000	8	4.173	11110000	4	2.605	01000000
16	8.891	11110101	16	7.634	11110101	4	2.085	01111111
8	6.615	01110000	4	4.183	01110000	4	5.028	00010000
4	1.057	10111101	4	1.087	10111101	4	1.782	11010001
4	2.944	01111101	4	0.914	01111101	4	0.536	10010001
4	0.426	10010010	8	1.179	11010011			
8	5.001	11010011	4	2.108	01110001			
4	1.638	01110001	8	11.41	11110111			
8	13.307	11110111	4	0.077	10111010			
12	7.829	01000000	4	0.736	10110001			
4	0.06	10111010	4	0.18	11011010			
4	3.386	01111111	8	1.72	01110101			
4	0.67	10110001	8	0.247	11000011			
4	0.699	11011010	8	2.528	11010000			
4	1.945	00010000	4	3.854	01010000			
4	5.188	11010001	4	0.066	10100010			
4	1.191	10010001	4	7.277	11011111			
8	6.203	01110101	4	0.158	11001001			
8	1.117	11000011	4	5.457	11110001			
8	6.704	11010000	4	0.105	10011001			
4	4.349	01010000	8	7.435	01000000			
4	0.04	10100010	4	0.036	00111100			
4	3.408	11011111	4	0.598	11101011			
4	0.347	11001001	4	0.343	01100010			
4	4.127	11110001	4	0.882	11011001			
4	0.287	10011001	4	0.79	11000001			
4	0.093	00111100						
4	0.384	11101011						
4	0.119	01100010						
4	1.73	11011001						
4	2.031	11000001						

indicators for responses for aggregate data set. Newspaper advertisements can be seen as a downtrend in recruitment practices. These days, organizations are turning to IT methods to enhance recruitment function. Along with other methods of recruitment, companies in India are concentrating on job portals ($P_{01}=1.000$) and company websites ($P_{01}=0.969$). Branine (2008) survey on UK organizations is supportive of the finding and establishes Internet as most popular method for graduate recruitment. In contrast, another study has found newspaper advertisement as most popular source of recruitment (Scholarios and Lockyer, 1999).

Across the group, it has been found that Manufacturing and Service companies differ from the aggregate behavior of the firms and simultaneously, they also differ from each other. The recruitment methods of Manufacturing organizations are quite distinct from Service organizations, and the results revealed that temporary staffing, advertisement in newspapers and head hunting are major indicators to make distinction in the responses. Reverse of it, Service companies are using all methods of recruitment with acute variations. It may be inferred that Manufacturing companies have to fight competition from the Service companies for attracting and getting talent as Service companies are using traditional as well as internet based sources like maintaining their own websites and job portals more in comparison to Manufacturing companies. Moreover, Service companies are comparatively new, IT savvy, and having better work environment in comparison to Manufacturing companies. With increasing number of internet users in India and economical information technology, the Manufacturing firms are forced to deviate from traditional low tech methods of recruitment, namely, head hunting, temporary staffing and advertisement in newspapers and moving fast towards internet based methods like job portals and company websites where Service organizations are already at advantage. Consistent with the findings, Parry and Tyson (2008) explore that online recruitment methods are more

suitable for knowledge workers and are less appropriate for blue-collar jobs. Arthur (2008) also suggests that internet is becoming most popular recruiting tool today and is widely practiced by organizations across the globe.

Though internet based recruitment methods have become popular now a days, findings indicate that the majority of companies still rely on traditional recruitment techniques like direct applicants, placement consultants and employee referrals. It can be said that companies now work through a conceptually sound framework (person job-fit) (Piotrowski and Armstrong, 2006) and unhesitatingly apply cost-effective, speedy, and convenient system (online methods) to meet their personnel selection needs in a highly competitive Indian environment.

4.2. Selection Methods

This part of study was designed to ascertain which particular tests or methods are considered to be important in selection in Indian organizations. The methods adopted for selection in existing companies are examined by using five prominent dimensions i.e. written tests, test on specific skills, psychological tests, technical interview and general interview. To get the overall image of these dimensions, the adopted procedure is identical as used in the above recruitment methods i.e. latent trait model. Table 5 and table 6 represent the behavior of observed responses and responses mapped by latent trait model. The figures in the last row of the table 5 signify that the model on selection methods has high goodness of fit. The model is also investigated for fitness at marginal level and it is found that most of the computed values of chi-square are below 5 implying the reliability of results in the form of median probability.

The figures in Table 5 indicated that all organizations place high weightage on practicing the methods related to assessment of specific skills, education and general behavior.

Table 5: Sample Responses and Most Likely Responses Regarding Selection Techniques

ITEMS	All Data Set (N= 426)		Manufacturing (N= 272)		Services (N=154)	
	Sample Frequency	Median Probability	Sample Frequency	Median Probability	Sample Frequency	Median Probability
		P(X=1/Z=0)		P(X=1/Z=0)		P(X=1/Z=0)
Written Test	0.878	1.000	0.838	1.000	0.948	1.000
Test on Specific Skills	0.784	0.990	0.728	0.949	0.883	1.000
Psychological Tests	0.258	0.252	0.316	0.298	0.156	0.156
Technical Interview	0.897	0.897	0.941	0.948	0.818	0.856
General Interview	0.958	0.991	0.963	0.999	0.948	0.978
% OF G-SQUARE EXPLAINED	-----	83.313	-----	83.782	-----	74.649

Table 6: Response Pattern regarding Selection Methods

All Data Set (N= 426)			Manufacturing (N= 272)			Service (N= 154)		
OBS.	EXP.	RESPONSE PATTERN	OBS.	EXP.	RESPONSE PATTERN	OBS.	EXP.	RESPONSE PATTERN
206	210.144	1 1 0 1 1	116	116.153	1 1 0 1 1	90	88.729	1 1 0 1 1
2	0.259	1 1 0 0 0	8	5.746	1 1 0 0 1	2	0.333	1 1 0 0 0
30	24.539	1 1 0 0 1	72	69.496	1 1 1 1 1	22	22.995	1 1 0 0 1
88	83.011	1 1 1 1 1	24	24.615	0 0 0 1 1	2	2.853	1 1 0 1 0
2	2.288	1 1 0 1 0	20	23.657	1 0 0 1 1	16	16.265	1 1 1 1 1
28	27.746	0 0 0 1 1	2	0.111	0 1 0 1 0	4	4.044	1 1 1 0 1
26	30.222	1 0 0 1 1	6	4.15	0 0 1 1 1	6	7.469	1 0 0 1 1
2	0.189	0 1 0 1 0	8	6.611	1 0 1 1 1	4	3.735	0 0 0 1 1
6	5.189	0 0 1 1 1	4	2.941	0 0 0 0 1	4	1.788	0 0 0 1 0
12	7.304	1 0 1 1 1	8	7.168	0 0 0 1 0	4	1.497	1 0 1 1 1
4	9.794	1 1 1 0 1	4	1.884	1 0 0 0 1			
4	2.977	0 0 0 0 1						
12	8.969	0 0 0 1 0						
4	3.343	1 0 0 0 1						

The psychological test has emerged as one of the technique that makes discrimination among the responses. Latent trait model has also generated similar types of results (ref. Table 5) given in the column heading under median probability. The findings indicated that firms in India usually conduct written test ($P_{01}=1.000$), test on specific skills ($P_{01}=.990$) and general interview ($P_{01}=.991$). Along with these firms also prefer technical interviews ($P_{01}=.897$). These selection methods were not found to discriminate among the responses. However, psychological test ($P_{01}=.252$) reversibly is found to create discrimination among the responses. This finding may arise because such western-oriented selection instruments are still new to local Indian firms, and more suited in western organizations and hence may not be used widely to evaluate the attitude of person groomed in Indian culture. Hsu and Leat (2000) also explore that psychometric tests are the least used instrument for selection in Taiwanese organizations mainly due to its western orientation.

For subgroups behavior of Manufacturing and Service companies, broadly, the behavior is almost similar to aggregate behavior. However, the psychological test ($P_{01}=.156$) has emerged as relatively more discriminating method in Service companies. The same is comparatively less discriminating in Manufacturing companies ($P_{01}=.298$) than Service companies. It means Indian companies (both Manufacturing as well as Service) are well aware of ineffectiveness of psychological test, causing it is less likely to be used for selection process. The prominent selection methods in

Manufacturing companies are written tests ($P_{01}=1.000$) and general interview ($P_{01}=.999$). In case of Service companies, the methods are written tests ($P_{01}=1.000$) and tests on specific skills ($P_{01}=1.000$). Further, second preference of the selection methods are tests on specific skills ($P_{01}=.949$) and technical interview ($P_{01}=.948$) in case of Manufacturing companies and general interview ($P_{01}=.978$) and technical interview ($P_{01}=.856$) in case of Service companies. These methods are widely used for selection and evaluation in Indian system which is characterized by its culture and education system. Hsu and Leat (2000) survey on Taiwanese Manufacturing firms, has shown similar kind of findings where skill tests and one-to-one and panel interviews have emerged as prominent techniques.

The results of the model are also checked for goodness of fit. The figures in the last row of table-5 and comparison of observed and expected frequencies in table-6 reflect fitness of the model which is quite satisfactory.

Broadly, the results of latent trait model as presented in table 5 showed that both Manufacturing and Service organizations tend to prefer written test as common selection method for entry level of managers. Further, to check the specific skills and technical knowledge of the candidates, median probability scores indicate that Manufacturing companies tend to practice test on specific skills and technical interviews comparatively more than Service companies.

5. CONCLUSION

With increasing competitive pressures, HR specialists must increase their understanding of recruitment and selection in business arena. The study presented here explores that methods of recruitment and selection used in Indian organizations seem to vary according to industrial sector; the process has generally become more rigorous and sophisticated as competition to obtain desired talent has increased. In Manufacturing organizations, the most practiced recruitment methods are direct applicants, placement consultants, employee referrals and company websites. At the same time, recruitment methods adopted by Service companies are employee referrals, job portals, temporary staffing, head hunting, advertisement in newspapers and company websites. The less practiced recruitment methods in Service companies are direct applicants and placement consultants. Also, it has been found that Service companies use recruitment methods more vigorously in comparison to Manufacturing companies. Surprisingly, Manufacturing companies have shown the tendency of using some recruitment methods very less i.e. temporary staffing, head hunting and advertisement in newspapers. When it comes to selection, methods found to be applied in Manufacturing companies are written tests and general interview. In case of Service companies, the methods are written tests and tests on specific skills. Further, second preference of the selection methods are tests on specific skills and technical interview in case of Manufacturing companies and general interview and technical interview in case of Service companies.

The current study generates insights that are estimated to be useful for employers who need to initiate effective recruitment programmes and for those who wish to improve their existing ones in this changing environment. This study might be significant for consultants who are asked to design a new staffing process for an organization, vendors who wish to sell tests, or academics who are asked to advise an organization regarding its personnel selection. At the same time, it might be a fruitful strategy for institutions of higher education as they can take help to reconsider the type of knowledge and skills they provide to prepare their students for the real world of work.

The current study has also incorporated some limitations. For such kind of study, the sample of 426 respondents covering both Manufacturing and Service companies is relatively small for generalizing the results. To derive more prominent and generalized results, the future researcher may adopt comparatively bigger sample size. This study was confined to exploring recruitment and selection methods in organizations operating in India and comparing the practices of Manufacturing and Service companies. Future studies may be extended across industry (i.e. covering a number

of industries) and across culture/national comparisons (i.e. India vs. UK, India vs. China, India vs. USA etc), as preferences for recruitment and selection methods may differ with the industry concerned or with the country of origin of the organization. Moreover, the areas concerning the linkage between recruitment and selection practices and desired HR and organizational outcomes, although not examined in this study, may well be worth further exploration.

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