Human Resource Research – A Tool for Understanding People

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Abstract

In business organizations for many managers, people problems rank among causes of dissatisfaction, frustration and stress. High levels of absenteeism and turnover, low morale, poor work attitudes and resistance to change all serve to diminish employee productivity and push up costs. The damage caused by extraordinary human problems often extends beyond firm's profit picture. An ineffectual and recalcitrant human resource group together with the absence of sound human resource (HR) problem solving techniques may result in gradual erosion of organisation's ability to remain competitive in a complex and uncertain business environment. The ability to conduct research and solve human resource problems is critically important to HR professionals and managers. The HR staff in many organizations is being called upon to play more of a role in the diagnosis of human problems and the creation and policies and programmes to solve them. The creation, implementation and evaluation of many HR programmes such as job enrichment, management development, career development, employee empowerment etc, usually involve some form of HR research.

Key Words: Human Resource Research, Research Techniques,Test of Independence of Attributes with Contingency Tables, Historical Studies, Controlled Experiments.

1.Introduction

Human resource research is the collection and investigation of facts related to human resource problems in order to eliminate or reduce those problems. Through HR research managers and administrators are able to substitute facts about human behaviour for theorizing, guess work and gut reactions. It helps the manager to manage workforce more productively. Human resource research is not a luxury of the HR department or something that should be done only if the budget permits. Human resource research is a critical path of all ongoing human resource programmes. Specific uses of HR research include the following: The measurement and evaluation of the existing conditions, the prediction of conditions, events and behavioural patterns, the evaluation of current policies, programmes and activities, the discovery of rational bases for revising current policies, programmes and activities, the appraisal of proposed policies, programmes and activities.

Most research can be classified as basic and applied research. Basic research, also referred as Pure Research, is undertaken in a particular field or to gather information about a given subject. The knowledge gained from pure research does not have any immediate application or particular use. Although most basic research takes place within the confines of scientists' laboratory, a great deal of basic research is also performed in human resource management. Most basic research in the Hr area is conducted by the faculty members of the college and universities as well as private, non-profit institutions. Applied research is conducted to solve a particular problem and its results may be put to immediate use. The majority of HR research in business firms is of this type. The earliest example of systematic, comprehensive applied research is the famous Hawthorne studies during the late 1920s. The Hawthorne studies involved thousands of employees and focused on employee productivity, morale, job satisfaction, group dynamics, and leadership styles. Modern applied HR research is concerned not only with these areas but also with equal employment opportunity, job design, organization development, human resource planning, recruitment and selection, and labour-management relationships.

HR research is conducted by individuals, private organizations and by the business firms. The most commonly researched areas include effectiveness of training, recruiting sources, performance evaluation, validation of employee selection systems and employee satisfaction.

1.1 Private Research Organisations: Many private research organizations have been formed with sole purpose of conducting pure applied research in performance area.

1.2 Personnel Associations: Large national personal associations periodically conduct research concerned with the practices and activities of the member's organization. The results of the studies are often reported in the associations' journal.
1.3 College and Universities: Institutions of higher education not only disseminate information but bear an important responsibility for discovering and analyzing information as well. The colleges and universities as a whole represent one of the greatest sources of basic and applied research in the HR field.
1.4 Business Firms: Many business firms conduct applied HR research to solve a particular problem or evaluate a present or proposed programme or project. Most firms do not have HR research specialists but require HR professionals to perform research as a normal part of their jobs. Common examples of ongoing research responsibilities of the HR staff may include the following:
1. Evaluating training and development programmes
2. Conducting periodic wage and salary surveys
3. Predicting future human resource requirements
4. Conducting surveys of employee attitudes
5. Conducting studies of employee productivity
6. Validating selection and testing instruments.

Human resource professionals frequently receive requests from line managers to conduct special studies of HR problems. These studies are often requested because of some problems that are faced by managers. Special studies of this type are an important part of the department's service responsibility. Examples of research requests from other departments may include the following:
1. Investigation of extraordinarily high employee grievances in a particular manufacturing department.
2. A programme to reduce absenteeism among clerical personnel
3. Evaluation of changes in a labour-management agreement that may affect employee productivity
4. Development of a special performance-appraisal method for sales personnel.

Although line managers may occasionally oversee a project themselves, it is normal for the HR staff to create and implement the project. For any research study to be successful, the HR administrator generally needs the cooperation and assistance of the line manager. Examples of the ways in which the line managers can lend support include assistance with the design of the study, providing performance data, allowing employees to be interviewed to complete survey forms, and reviewing research results. Human resource professionals can gain the support of line managers by explaining why research is necessary and showing how research results may help them perform their jobs more effectively.

2.Research Techniques

Many research techniques exist, and the choice of a particular one depends on the purpose of research and the type of problem under study. Familiarity with various research techniques is important for two reasons. First, practitioners encounter a variety of human problems in the work place, and the appropriate research technique must be applied to particular problem in question. The selection of an inappropriate research technique may seriously affect the study's overall validity and usefulness. Second, a broad knowledge of research technique is necessary in order to read and understand the studies reported by other employers and researchers. Managers must be able to evaluate the research of others, differentiate between good and poor research, and develop research oriented skills in the subordinates. The research techniques most often used to conduct studies in human research include the survey, interview, historical study and controlled experiment.

a. Surveys

The employee survey is the most widely used research technique among HR professionals. The most common surveys include the wage survey and the job-satisfaction survey. The job-satisfaction survey is often referred to as an 'Attitude or Morale Survey'.
Job-satisfaction Survey: Since the beginning of the human- relations movement managers have sought their employee's opinions and attitudes concerning a wide range of topics and issues. Because morale and job satisfaction have been important determinants of employee productivity, absenteeism, and turnover, managers have systematically used 'Job-satisfaction Suveys" and collected and anlysed data concerning employee attitudes in order to make jobs more satisfying and ultimately more productive.

Many factors contribute to employee job satisfaction. However, the following are the four elements that most surveyed employees reported they like best about their jobs:

1. **The job itself:** Top among job satisfaction factors is the kind of work employees perform, especially when the job is challenging or interesting and the freedom that they have to determine how the work is done.
2. **Co-worker relation:** The quality of relationships within the work group is very important to employees, especially the extent to which the individual is accepted as part of the work unit and the friendliness and support of his or her fellow employees.
3. **Good supervision:** Job satisfaction is considerably improved when supervisors are perceived to be fair, helpful, competent and effective. This includes the supervisor's skill as problem solver, coach, trainer, and listener and as the timely, authoritative source of key job-related information for employees.
4. **Opportunity to grow:** Employees derive a great deal of job satisfaction from learning new things and from the chance to develop new skills. Advancement opportunity is also very important to them.

On the other hand, the most frequently reported factors that detract from job satisfaction are the following:

1. **Poor supervision:** Insensitive, incompetent, and uncaring supervisors seem to have the most negative effect on employee job satisfaction. This includes unfair, biased treatment by supervisors, failure of supervisors to listen and respond to employee's problems or concerns, and problems with management communication credibility. The most frequent negative ratings occur among those survey issues that are directly affected by supervisory practices. These include failure of supervisors to recognize employees for good work performance, failure of supervisors to take appropriate action to correct non performance by employees, lack of fairness, uniformity and consistency by supervisors in administering company policy and the existence of favouritism.
2. **Interpersonal Conflicts:** Interpersonal conflicts, lack of team work, unfriendliness among co-workers, and rivalries among managers and supervisors are reported to have major negative effect on employee job satisfaction.
3. **Poor work environment:** Dirty, noisy, unsafe, and unhealthy work conditions, including heat and poor ventilation, also are leading detractors from job satisfaction.
4. Poor pay: Low uncompetitive pay is nonetheless often reported as one of the things that detracted from overall job satisfaction.

Questionnaire: HR researchers often find it useful to gather employee's opinions about specific job-related issues. For example, employees may be asked to evaluate the organisation's training and development function, orientation programme or a proposed job-enrichment programme. Because the questionnaire focuses on an organisation's particular problems or issues they are generally custom-made by members of the personnel staff or an outside consultant.

Survey Administration: The total process of planning, implementing and analyzing employee surveys and questionnaires includes a number of important elements. Regardless of the type of survey implemented, the following steps must be considered.

1. **Objectives:** As an initial step, management must identify the objectives of the survey. Common objectives of surveys include the identification of communication problems, execessive turnover, and concerns about pay and benefits, training and development needs, predict unionization efforts, and problems dealing with advancement opportunities and discipline.
2. **Top-management Commitment**: The support of top management is critical if the survey is to be of benefit to the organization. In particular, management must be willing to act upon the survey results and communicate the outcome of the survey to the employees.
3. **Survey Development:** Surveys may either be developed internally or prepared by an outside consulting firm. While management may be inclined to prepare the survey itself, research indicates several advantages to outside development. The outside consultant brings proven competence, experience, and objectivity and employees are apt to have more faith in the process when they see the company pay an outside firm to develop and administer the survey. Regardless of who develops the survey, the statements and questions must reflect the problems faced by the organized. In addition, the effectiveness of the survey will be enhanced by allowing the entire management and supervisory team to participate in drafting the survey.
4. **Announcing the survey**: A few weeks before implementing the survey, a member of top management should send a letter to all employees explaining the purpose of the survey, when

it will be given, and when the results will be communicated. The letter should also stress that honesty in completing the survey is essential and that individual employee responses cannot be identified. Survey anonymity will enhance the validity of the employee responses.

5. **Implementation:** Some important considerations for administering the survey are: (a) allow employees sufficient time to complete the survey, (b) administer the survey to all employees at the same time and (c) administer the survey on company premises.
6. **Analysis:** Survey results should reflect total organizational results in comparison to individual employee groups. Based on the results, problem areas are identified, and recommendations to overcome these problems are developed. If an outside firm is not employed, the HR department normally assumes the responsibility.

Different statistical tools can be applied to analyse the collected data. Apart fromthe simple techniques like frequency distribution, standard deviation, correlation other tools like Chi-Square test, Profile Analysis and so on can be applied. For the purpose of better understanding one such method 'Test of Independence of Attributes with Contingency Tables is described here under.

Let us consider two attributes A and B , A divided into r classes A_1 ,A_2, A_3, …… , A_r and B divided into s classes B_1 , B_2 , ….. , B_s. Such a classification in which attributes are divided into more than two classes is known as *manifold classification*. The various cell frequencies can be expressed in the following table known as *r x s manifold contingency table* where (A_i) is the number of persons possessing the attributes A_i , (i = 1 , 2 ,……, r) , (B_j) is the number of persons possessing the attribute B_j (j = 1 , 2 ,……., s) and ($A_i B_j$) is the number of persons possessing both the attributes A_i and B_j (i = 1 , 2 ,….., r ; j = 1 , 2 ,……., s).

$\sum_{i=1}^{r} (A_i) = \sum_{j=1}^{s} (B_j) = N$, where N is the total frequency.

(Please see Appendix for Contingency Table)

The problem is to test if the two attributes A and B under consideration are independent or not.
Under the null hypothesis that the attributes are independent the theoretical cell frequencies are calculated as follows:

P [A_i] = Probability that a person possesses the attribute

$$A_i = \frac{(A_i)}{N} \; ; \; i = 1 , 2 , \dots , r.$$

P [B_j] = Probability that a person possesses the attribute

$$B_j = \frac{(B_j)}{N} \; ; \; j = 1 , 2 , \dots , s.$$

P [$A_i B_j$] = Probability that a person possesses the attributes

$A_i B_j = P (A_i) P (B_j)$

(By compound probability theorem, since the attributes are A_i and B_j independent, under the null hypothesis.)

$$\therefore P [A_i B_j] = \frac{(A_i)}{N} \cdot \frac{(B_j)}{N} \; ; i = 1, 2, \dots, r ; j = 1, 2, \dots, s \text{ and}$$

$(A_i B_j)_0$ = Expected number of persons possessing both the attributes

$$A_i \text{ and } B_j = N \cdot P [A_i B_j] = \frac{(A_i) (B_j)}{N}$$

$$\Rightarrow (A_i B_j)_0 = \frac{(A_i)(B_j)}{N}, \quad (i = 1, 2, \ldots, r \; ; \; j = 1, 2, \ldots, s)$$

By using this formula, we can find out expected frequencies for each of the cell frequencies $(A_i \; B_j)$, $(i = 1, 2, \ldots, r \; ; \; j = 1, 2, \ldots, s)$, under the null hypothesis of independence of attributes.

The exact test for the independence of attributes is very complicated but a fair degree of approximation is given, for large samples (large N) by the χ^2 test of goodness of fit, viz.,

$$\chi^2 = \sum_{i=1}^{r} \sum_{j=1}^{s} \left[\frac{\{(A_i B_j) - (A_i B_j)_0\}^2}{(A_i B_j)_0} = \sum_i \sum_j \right] \frac{(f_{ij} - e_{ij})^2}{e_{ij}}$$

where f_{ij} = observed frequency for contingency table category in column i and row j ,

e_{ij} = expected frequency for contingency table category in column i and row j ,

which is distributed as χ^2 – aviate with (r – 1) (s – 1) d.f. [c.f. Note below on degrees of freedom].

3.Remarks

1. $\phi^2 = \chi^2 / N$ is known as *mean square contingency*.
Since the limits for χ^2 and ϕ^2 vary in different cases, they can not be used for establishing the closeness of the relationship between qualitative characters under study. Prof. Karl Pearson suggested another method known as '*Coefficient of Mean Square Contingency*' which is denoted by C and is given by:

$$C = \sqrt{\frac{\chi^2}{\chi^2 + N}} = \sqrt{\frac{\phi^2}{1 + \phi^2}}$$

Obviously C is always less than unity. The maximum value of C depends on r and s, the number of classes into which A and B are divided. In a r x r contingency table, the maximum value of C = $\sqrt{(r - 1 / r)}$. Since the maximum value of C differs for different classification, viz., r x r (r = 2 , 3 , 4 , 5, ….), strictly speaking, the values of C obtained from different types of classifications are not comparable.

2. Note on degrees of freedom (d.f.) : The number of independent variates which make up the statistic (example χ^2) is known as the degrees of freedom (d.f.) and is usually denoted by ν (the letter 'Nu' of the Greek alphabet).

The number of degrees of freedom, in general, is the total number of observations less the number of independent constraints imposed on the observations. For example, if k is the number of independent constraints in a set of data of n observations then $\nu = (n – k)$.

Thus in a set of n observations usually, the degrees of freedom for χ^2 are (n-1), one d.f. being lost because of the linear constraint $\sum_i f_i = \sum_i e_i = N$,

on the frequencies. If 'r' independent linear constraints are imposed on the cell frequencies, then the d.f. are reduced by 'r'.
In addition, if any of the population parameter (s) is (are) calculated from the given data and used for computing the expected the expected frequencies in applying χ^2 test of goodness of fit, we have to subtract one d.f. for each parameter calculated. Thus if 's' is the number of population parameters

estimated from the sample observations (n is number), then the required number of degrees of freedom for χ^2 test is (n – s – 1).

If any one or more of the theoretical frequencies is less than 5, then in applying χ^2 – test we have also to subtract the degrees of freedom lost in pooling these frequencies with the preceding or succeeding frequency (or frequencies).

In a r x s contingency table, in calculating the expected frequencies, the row totals, the column totals and the grand totals remain fixed. The fixation of 'r' column totals and 's' row totals imposes (r + s) constraints on the cell

frequencies. But since $\sum_{i=1}^{r} (A_i) = \sum_{j=1}^{s} (B_j) = N$, the total number of independent

constraints is only (r + s – 1). Further since the total number of cell frequencies is r x s, the required number of d.f. is:

$\nu = rs - (r + s - 1) = (r - 1) (s - 1)$.

4.1 Feedback: Survey results should be communicated to the employees soon after they have been tabulated and reviewed by top management. Face to face meetings between supervisors and employees are usually most effective for providing survey feedback, and the use of overhead transparencies, slides, and illustrated enhances the effectiveness of the presentation. The supervisor making the presentation should encourage comments and suggestions and should pass this information on to higher management.

4.2 Follow-up: Survey follow-up is important to ensure that good relations are maintained between employees and management and that action is undertaken and completed.

Caution: Survey results gain meaning only by virtue of relevant comparisons. This means that great care should be given while asking questions to respondents. It further suggests that survey results can be much more useful if there is a large comparative data base collected over a period of time.

4.3 Exit Interviews

Organisations often conduct exit interviews with employees who have voluntarily decided to leave. These employees can provide valuable information about the work environment that might not be available through any other source. The employer is often able to pinpoint sources of unwanted turnover such as unfair treatment, perceived low pay or benefits or poor supervisors. The success of the exit interview depends largely on the employees' belief that their responses will be held in strict confidence and will not affect the employer's response to future reference requests. Personnel interviewers generally agree that to obtain the employee's cooperation; the interviewer should be some one from the HR department and definitely not the immediate supervisor. The questions are generally open-ended and may require probing follow-up questions to uncover the employee's sentiments.

4.4 Historical Studies

Human resource researchers often find that tracking certain data over time helps them gain greater insight into human behaviour. By isolating a small number of variables, a historical study analyses patterns over weeks, months, or in some cases years. For example, many organizations analyse absenteeism and turnover data to assess whether these problems are increasing, decreasing or remaining unchanged.

4.5 Controlled Experiments

Compared to surveys and interviews, controlled experiments are seldom used in actual HR practice. But there are some occasions when this technique is feasible and may help a research effort. To illustrate the steps involved, a job enrichment pilot study in a large manufacturing plant will be used.

1. Define the problem: For example poor productivity, excessive rejects.
2. Evaluate alternatives and select an alternative: For example some possible alternative may be to implement incentive pay system, introduce new technology, and tighten up through closer supervision, job enrichment. Select job enrichment.

3. State the hypothesis: For example six after the implementation of job enrichment, average employee productivity will have increased by 20 per cent and the average rejects per employee will have decreased by 25 per cent.
4. Select experimental and control groups: For example implement job enrichment in one area select a similar area to serve as a control group.
5. Measure experimental and control group prior to experiment: For example collect productivity and quality data for both groups before the experiment.
6. Conduct the experiment : For example implement job enrichment
7. Measure experimental and control groups after the experiment: For example collect productivity and quality data for six months after the implementation for job enrichment.
8. Analyse data, draw conclusions report results: For example compare before and after data, determine the impact of the programme report conclusions to top management.

Conclusion

Sound HR research can significantly strengthen an organization's human resource programme. Some specific uses of research include measurement and evaluation of current personnel policies, programmes and activities and appraisal of proposed policies, programnes and activities. Human resource research is conducted by a variety of individuals and public and private organizations, private research organizations, personnel associations, colleges and universities and individual business firms. In a business firm, HR research is usually conducted by the member of the personnel staff. Techniques that are frequently used in HR research include surveys, specific-use questionnaires, interviews, historical studies. The primary uses of surveys, questionnaires, and interviews are to gather employee feelings and perceptions about areas of job satisfaction and dissatisfaction and to evaluate present and proposed HR programmes and policies. An important requirement for HR research is a valid HR information system. Without relevant information, it will not only be difficult to carry out meaningful research but will also limit the HR staff's day-to-day effectiveness.

Appendix

r x s CONTINGENCY TABLE

A B	A_1	A_2	….	A_i	….	A_r	**Total**
B_1	$(A_1 B_1)$	$(A_2 B_1)$	….	$(A_i B_1)$	….	$(A_r B_1)$	(B_1)
B_2	$(A_1 B_2)$	$(A_2 B_2)$	….	$(A_i B_2)$	….	$(A_r B_2)$	(B_2)
:	:	:	:	:	:	:	:
B_j	$(A_1 B_j)$	$(A_2 B_j)$	….	$(A_i B_j)$	….	$(A_r B_j)$	(B_j)
:	:	:	:	:	:	:	:
B_s	$(A_1 B_s)$	$(A_2 B_s)$	….	$(A_i B_s)$	….	$(A_r B_s)$	(B_s)
Total	(A_1)	(A_2)	….	(A_i)	….	(A_r)	N