

Factors Contributing to Efficiency of the Personnel Working in a Research Organization – a Case Study

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Introduction

The concept of efficiency, in management of organizations is as old as the beginning of the industrial revolution in India after independence. However the focus on this performance factor was seen after adoption of economic reforms, with the approach of liberalization, privatization and globalization during 1991. A majority of public sector organizations in production, service and research areas sensed competition from private, national as well as international organizations. Competitiveness is the new challenge organizations face today, be it in agriculture, pharmaceuticals, medicine, industry or infrastructure. The success lies in cost reduction and quality improvement and the key lies with research and development, which can bring considerable benefits.

The new developments demand a number of changes in the pattern of work environment, set to perform better and in an efficient manner. The scientific research organizations are generally unique in terms of their working and output. However with the changing business environment, these research organizations need to gear up to meet the new challenges through management reforms to become competitive, effective and efficient.

Efficiency and effectiveness are defined as 'doing things right' and 'doing the right things', by Peter Drucker (Szilagyi 1981). However, in the context of performance, efficiency may be defined as "achieving the optimum result from given inputs in the prescribed time limit".

It is in this context that the present case study was conducted to explore and identify the critical factors that affect the efficiency of scientists and other supporting staff of a public sector research organization.

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Objectives of the Study

The objectives of the study were:

1. To explore the perception of efficiency in job performance.
2. To identify various factors contributing towards improvement in efficiency.
3. To identify various factors leading to inefficiency in the organization.
4. To provide / suggestions for improving the efficiency in research organizations.

Methodology

Sample size

The responses of personnel working in the selected scientific research institute were obtained from all the three categories of employees, department wise viz., scientists (20), technical personnel (30), administration / accounts personnel (30) and similarly gender wise i.e. male (54) and female (26) with a total sample size of 80 people.

To meet the objectives of the present case study, primary data was collected, from the personnel working in the organization, using a pre-tested questionnaire, The questionnaire was developed to elicit information on responses relating to perception of efficiency in job performance, factors contributing to improvement in efficiency, personal factors leading to inefficiency and organizational factors leading to inefficiency in the organization.

The number of responses for different choices under each question along with percentage in brackets was arranged in descending order considering the pooled responses of the total sample under three headings viz. (i) pooled responses of total sample, number (%) (ii) category wise responses, number (%) and (iii) gender wise responses, number (%).

Analysis of Data

For considering a particular choice as response to draw inferences, responses at 50 per cent and above level were considered. In general, the level of 50 per cent and above represents an adequately sufficient number for validity purposes.

Results and Discussion

1. Concept of Efficiency

Efficiency, in brief can be defined as 'doing things right'. However people perceive

this term on the basis of their personal traits, experiences and systems under which they function. In the present case study, when all the responses in the total sample were considered at 50 per cent and above level (table-I), the respondents perceived 'efficiency' in seven terms, viz 'quality of work in a given time', 'problem solving attitude / approach', 'positive attitude towards duty and responsibility', 'punctuality at work', 'performance of job at a given time', 'efficient management of time and staff' and 'strong team work'. Their perception covers important factors relating to their personal traits, working systems/conditions such as quality of work, time, attitude, duty, responsibilities, punctuality and performance.

Category wise analysis (table 1) indicated that the 'scientists' perceived all the above mentioned choices except 'punctuality at work'. Alternatively, scientists perceive efficiency to mean 'high level of performance'. This changed choice indicates that scientists perceive a high level of performance as an indicator of efficiency, whereas the omitted choice may be due to the nature of their task, i.e. experiments, which continue for a long time in laboratory conditions, where punctuality is considered as a secondary aspect.

The group of 'technical personnel' had common perceptions with other groups and included the above mentioned seven choices, whereas the 'administration/accounts personnel' perceived three of the above mentioned choices along with one addition viz., 'good interpersonal relations' omitting three choices, viz. 'problem solving attitude / approach', 'efficient management of time and staff' and 'strong team work'. Possible reasons for the omitted choices could be due to the fact that their task is routine in nature and does not carry much challenge, however, they require good interpersonal relations and teamwork approach in order to complete their work.

The group of 'male' respondents had common perceptions with other groups and had seven choices mentioned above, whereas the group of 'female' respondents perceived only four choices, omitting three choices viz. 'punctuality at work', 'efficient management of time and staff', and 'strong team work' like the group of 'administration/accounts personnel'. However the 'female' group of respondents perceived two additional choices 'high level performance' and 'satisfaction of the employees/client/visitors for service'. These perceptions indicate the concern of female respondents towards their performance as in case of 'scientists group' as well as about the services provided by the organization to different stakeholders.

Out of twenty two choices, the least preference was found for the last six choices viz. 'high behavioural acceptance', 'absence of personal and work stress', 'satisfaction of

controlling authority', 'sense of pride', 'informal communication', 'high personal values', and 'putting a lot of work hours' in their perception of efficiency. The responses were below 20 per cent for the above seven factors.

The respondents did not find the terms like behavioural aspects, work stress, satisfaction controlling authority, pride, personal values and informal communication in their perception of efficiency.

From the analysis of responses, the inference can be drawn, that people working in research organizations perceive efficiency in different ways, according to the nature of their work, experience, work environment, systems, organizational culture and eventually as per the own total understanding of the organization.

Table 1. Concept of Efficiency as perceived by the Members in the Organization

Sl. No.	Choices	Pooled responses Nos (%) 80 N	Department wise responses Nos. (%)			Gender wise responses Nos. (%)	
			Scientists 20 N	Technical 30 N	Admn / Accts 30 N	Male 54 N	Female 26 N
1	Quality of work in given time	55 (69)	16 (80)	21 (97)	18 (60)	35 (65)	20 (77)
2	Problem solving approach/attitude	50 (63)	14 (70)	22 (73)	14 (47)	34 (63)	16 (62)
3	Positive attitude towards duty and responsibility	49 (61)	13 (65)	18 (60)	18 (60)	29 (54)	20 (77)
4	Punctuality at work	49 (61)	8 (40)	23 (77)	18 (60)	37 (69)	12 (46)
5	Performance of job at given time	48 (60)	10 (50)	16 (53)	22 (73)	30 (56)	18 (69)
6	Efficient management of time and staff	45 (56)	15 (75)	18 (60)	12 (40)	35 (65)	10 (38)
7	Strong teamwork	40 (50)	12 (60)	16 (53)	12 (40)	28 (52)	12 (46)
8	Good interpersonal relations	37 (46)	7 (35)	14 (47)	16 (53)	25 (46)	12 (46)
9	High-level performance	36 (45)	13 (65)	13 (43)	10 (33)	22 (41)	14 (54)
10	Leadership quality	26 (33)	8 (40)	14 (47)	4 (13)	20 (37)	6 (23)
11	Quality of output in relation to certain standards	26 (33)	7 (35)	11 (37)	8 (27)	22 (41)	4 (15)

12	Satisfaction of the employees / client / visitors for service	25 (31)	8 (40)	9 (30)	8 (27)	11 (20)	14 (54)
13	High degree of moral conduct	24 (30)	6 (30)	12 (40)	6 (20)	20 (37)	4 (15)
14	Ratio of input of work	20 (25)	4 (20)	8 (27)	8 (27)	16 (30)	4 (15)
15	Quick & effective conflict management	18 (23)	4 (20)	4 (13)	10 (33)	12 (22)	6 (23)
16	High behavioral acceptance	17 (21)	3 (15)	8 (27)	6 (20)	13 (24)	4 (15)
17	Absence of personal & work stress	13 (16)	4 (20)	7 (23)	2 (07)	11 (20)	2 (08)
18	Satisfaction of the controlling authority	11 (14)	1 (05)	6 (20)	4 (13)	9 (17)	2 (08)
19	Sense of pride	9 (11)	3 (15)	6 (20)	0 (0)	7 (13)	2 (08)
20	Informal communication	9 (11)	1 (05)	6 (20)	2 (07)	9 (17)	0 (0)
21	High personal values	9 (11)	2 (10)	5 (17)	2 (07)	7 (13)	2 (08)
22	Putting a lot of work hours	3 (04)	0 (0)	3 (10)	0 (0)	3 (6)	0 (0)

2. Factors contributing to improving Efficiency in the Organization

The respondents identified six factors that contribute to improving efficiency in the organization (Table 2), viz. 'sense of responsibility', 'recognition to efficiency, honesty and hard work', 'team spirit', 'appreciating and accommodating others view points', 'time consciousness' and 'personnel and organizational communication'. All these factors are closely related with the personal traits of the respondents, work culture of the institute and organizational systems. The factors also highlight the concern of the personnel towards individual initiatives needed viz., responsibility, time consciousness, communication and understanding others.

When considering responses category wise, the 'scientists' identified all the above-mentioned factors, omitting 'personnel and organizational communication'. Beside the above five choices, the scientists identified other factors, viz. motivating climate',

'efficient management of resources', 'work culture of taking things seriously / urgently', 'open and congenial work environment', 'automation resulting in timely disposal of work' and 'professional approach in work'.

Both the groups of 'technical personnel' and 'administration/accounts personnel' had the same seven factors, which contribute to improving efficiency in the organization as mentioned above.

The group of 'male' respondents, in addition to the above mentioned six factors, identified two additional factors, viz. 'efficient management of resources' and 'work culture of taking things seriously / urgently', as factors that contribute to improving efficiency in the organization.

The 'female' group of respondents identified only the three common factors viz., 'sense of responsibility', 'recognition to efficiency, honesty and hard work and 'team spirit'. The group identified one additional factor viz. 'motivating climate' towards contributing to improving efficiency in the organization.

Majority of respondents in the total sample as well in individual groups identified six factors that seem to contribute to improving efficiency in the organization. These factors may be categorized under two broad groups.

Factors relating to personal attention

1. Sense of responsibility
2. Time consciousness
3. Appreciating and accommodating others view point

Factors relating to group / organizational attention

1. Team spirit
2. Recognition to efficiency, honesty, and hard work
3. Personal and organizational communication

All the ten factors identified by the group of 'scientists', and six each by other two groups of respondents 'technical personnel' and 'administration/accounts personnel', indicate that there is a common understanding among people in the organization towards issues related with improving efficiency. It is, thus, understandable that the efficiency in an organization could be enhanced through conscious efforts by way of appropriate work culture and organizational interventions. Neglect of the issues identified by the groups might lead to compartmentalization of work thereby resulting in inefficiency in the organization.

Table 2. Factors Contributing towards Improvement in Efficiency

Sl. No.	Choices	Pooled responses Nos (%) 80 N	Department wise responses Nos. (%)			Gender wise responses Nos. (%)	
			Scientists 20 N	Technical 30 N	Admn / Accts 30 N	Male 54 N	Female 26 N
1	Sense of responsibility	67 (84)	15 (75)	26 (87)	26 (87)	45 (83)	22(85)
2	Recognition to efficiency, honesty and hard work	63 (79)	15 (75)	24 (80)	16 (53)	47 (87)	16(62)
3	Team spirit	58 (72)	16 (80)	21 (70)	18 (60)	38 (70)	20(77)
4	Appreciating & accommodating others view point	44 (55)	12 (60)	16 (53)	16 (53)	36 (66)	8 (31)
5	Time consciousness	42 (52)	10 (50)	16 (53)	16 (53)	36 (66)	6 (23)
6	Personal and organizational communication	40 (50)	4 (20)	18 (60)	18 (60)	32 (59)	8 (31)
7	Work culture of taking things seriously / urgently	39 (49)	13 (65)	13 (43)	13 (43)	29 (54)	10(38)
8	Efficient management of resources	38 (47)	14 (70)	12 (40)	12 (40)	28 (52)	10(38)
9	Automation resulting in timely disposal of work	35 (44)	10 (50)	12 (40)	12 (40)	23 (43)	12(46)
10	Motivating climate	36 (45)	14 (70)	11 (37)	11 (37)	22 (40)	14(54)
11	Professional approach in work	32 (40)	10 (50)	11 (37)	11 (37)	23 (43)	10(38)
12	Transparent/Impartial policies	28 (35)	8 (40)	10 (33)	10 (33)	24 (44)	4 (15)
13	Open and Congenial work environment	26 (33)	12 (60)	7 (23)	7 (23)	16 (30)	10(38)
14	Feeling of security and belongingness to organization	25 (31)	9 (45)	8 (27)	8 (27)	15 (28)	10(38)
15	Individual happiness and satisfaction	25 (31)	3 (15)	11 (37)	11 (37)	23 (43)	2 (8)
16	Purpose orientation	20 (25)	8 (40)	7 (23)	7 (23)	18 (33)	4 (15)
17	Client oriented approach	18 (22)	6 (30)	6 (20)	6 (20)	14 (26)	4 (15)

18	Ownership of task and reward	18 (22)	6 (30)	6 (20)	6 (20)	10 (19)	8 (31)
19	Process orientation	17 (21)	3 (15)	7 (23)	7 (23)	15 (28)	2 (8)
20	High self esteem of people	17 (21)	5 (25)	6 (20)	6 (20)	17 (31)	0 (0)
21	Trust with constructive self-disclosure among people.	16 (20)	6 (30)	5 (17)	5 (17)	14 (26)	2 (8)
22	Benchmark in work norms	14 (18)	7 (35)	4 (13)	4 (13)	11 (20)	4 (15)
23	A live plan for effective human relations	9 (11)	3 (15)	3 (10)	3 (10)	5 (9)	4 (15)

3 (A). Personal factors contributing to inefficiency in the Organization

Unlike the earlier two questions, a very low percentage of respondents replied to the two questions relating to identification of factors that contribute to inefficiency in the organization. The analysis of responses, when all the responses in the total sample were considered at 50 per cent and above level (Table 3 A) indicate that the respondents identified only one personal factor, viz. 'lack of motivation in work place', When considering the responses in individual groups for different factors (Table 3 A), the 'scientists' identified six personal factors such as 'lack of motivation in work place', 'lack of incentive and appreciation for work', 'poor managerial quality and skills', 'lack of leadership in work place', 'attitude towards work', and 'lack of commitment to work'. The factors identified by the highly-qualified researchers should serve as pointers for appropriate interventions within an organization for bringing down the inefficiency level.

The 'technical personnel' identified only two personal factors, viz. 'lack of motivation in work place' and 'lack of commitment to work. The fact that the 'administration / accounts personnel' identified only one factor, viz. 'lack of knowledge of rules' is quite understandable as this group of people look at issues from the rules and regulations point of view only. A changed mind set among administration / accounts group of people to focus on issues with a positive frame of mind would be needed to bring about a facilitating and supporting organizational climate.

Table 3 (A). Personal Factors contributing to Inefficiency in the Organization

Sl. No.	Choices	Pooled responses Nos (%) 80 N	Department wise responses Nos. (%)			Gender wise responses Nos. (%)	
			Scientists 20 N	Technical 30 N	Admn / Accts 30 N	Male 54 N	Female 26 N
1	Lack of motivation in work place	49 (61)	18 (90)	19 (63)	12 (40)	33 (61)	16(62)
2	Lack of incentive and appreciation for work	39 (49)	15 (75)	10 (33)	14 (47)	23 (43)	16(62)
3	Lack of commitment to work	39 (49)	10 (50)	15 (50)	14 (47)	33 (61)	6 (23)
4	Attitude towards work	31 (39)	11 (55)	10 (33)	10 (33)	25 (46)	6 (23)
5	Poor communication skills and system	31 (39)	8 (40)	9 (30)	14 (47)	19 (35)	12(46)
6	Lack of knowledge of rules	28 (35)	3 (15)	5 (17)	20 (67)	20 (37)	8 (31)
7	Poor managerial qualities and skills	26 (33)	12 (60)	4 (13)	10 (33)	20 (37)	6 (23)
8	Lack of leadership in work place	2 (33)	11 (55)	11 (37)	4 (13)	20 (37)	6 (23)
9	Lack of technical qualification and training	25 (31)	6 (30)	7 (23)	12 (40)	23 (43)	2 (8)
10	Family and personal problems	17 (21)	3 (15)	4 (13)	10 (33)	9 (17)	8 (31)
11	Lack luster approach to work	15 (19)	6 (30)	3 (10)	6 (20)	13 (24)	2 (8)
12	Feeling insecure in job situation	9 (11)	0 (0)	1 (3)	8 (27)	7 (13)	2 (8)
13	Poor health and job stress	8 (10)	1 (5)	3 (10)	4 (13)	6 (11)	2 (8)

The 'male' group of respondents identified two factors viz. 'lack of motivation in work place' and 'lack of commitment to work'. The 'female' group of respondents identified only one factor, viz. 'lack of motivation in work place'. This particular factor 'lack of motivation in work place' was common to all groups, pointing the need to make efforts for creating a motivational climate, which was also an identified factor that contributes to improving efficiency in the institute.

The responses by the total group as well as within individual groups indicate that factors such as motivation, incentives, appreciation for work, attitude and commitment towards work, managerial qualities and skills, and lack of knowledge of rules could be common towards contributing to inefficiency in public sector institutions. All these factors could be successfully tackled by proper management at the organizational level as well as through proper development of personnel by way of policy changes, management interventions, systems improvement, and planned human resource development, and by creating a congenial work environment.

3 (B) Organizational factors contributing to inefficiency in the Organization

Considering all the responses in the total sample, at 50% and above level (Table 3 B), the analysis indicated only one organizational factor, i.e. 'poor team work spirit', contributing to inefficiency in the organization. The 'scientists' group identified 'poor team work spirit', 'lack of organizational vision and mission', 'low morale in work place' and 'lack of transparency in work' as factors contributing to inefficiency in the organization.

The 'technical personnel' identified 'poor team work spirit' and 'administration / accounts personnel' identified 'lack of organizational vision and mission' as factors leading to inefficiency. The 'male' as well as 'female' groups of respondents identified only one organizational factor, viz. 'poor team work spirit'. All these indicate the need for creating a spirit of teamwork to foster cooperation for quicker disposal of work, with realization of organizational vision and mission to accomplish organizational goals. In effect, there is a definite need to re-look at the organizational work culture and systems that affect performance and efficiency in an organization.

Table 3 (B), Organizational Factors contributing to Inefficiency in the Organization

Sl. No.	Choices	Pooled responses Nos (%) 80 N	Department wise responses Nos. (%)			Gender wise responses Nos. (%)	
			Scientists 20 N	Technical 30 N	Admn / Accts 30 N	Male 54 N	Female 26 N
1	Poor team work spirit	42 (53)	12 (60)	16 (53)	14 (47)	28(52)	14(54)
2	Lack of organizational vision and mission	36 (45)	11 (55)	7 (23)	18 (60)	26(48)	10(38)
3	Controlling attitude of superior	27 (34)	7 (35)	10 (33)	10 (33)	19(35)	8 (31)
4	Low morale at work place	26 (33)	11 (55)	5 (17)	10 (33)	20(37)	6 (23)
5	Lack of transparency in work	26 (33)	10 (50)	8 (27)	8v(27)	20(37)	6 (23)
6	Lack of delegation of power to do a task	22 (28)	7 (35)	3 (10)	12 (40)	18(33)	4 (15)
7	Poor interpersonal relationship	20 (25)	2 (10)	8 (27)	10 (33)	18(33)	2 (8)
8	No flexibility in work	20 (25)	2 (10)	10 (33)	8 (27)	18(33)	2 (8)
9	Non-congenial working atmosphere	19 (24)	7 (35)	6 (20)	6 (20)	15(28)	4 (15)
10	Authority and responsibility	19 (24)	3 (15)	12 (40)	4 (13)	15(28)	4 (15)
11	Lack of benchmark for results	18 (23)	7 (35)	7 (23)	4 (13)	12(22)	6 (23)
12	Too much file work	18 (23)	7 (35)	7 (23)	4 (13)	12(22)	6 (23)
13	Favouritism /Nepotism	15 (19)	5 (25)	4 (13)	6 (20)	13(24)	2 (8)
14	Poor ownership of work	13 (16)	6 (30)	3 (10)	4 (13)	13(24)	0 (0)

Conclusion

Based on the present case study, some generalizations and conclusions could be drawn. These are:

- People have their own perceptions about efficiency, based on their personal experience, nature of work, organizational systems, and eventually on total understanding of the organization.

- There are a number of factors, as many as ten, that contribute to the efficiency of personnel in a research organization, some of which are personal while others are organizational factors. These factors need urgent attention of the top management of the organization for appropriate policy formulation and corrective action.
- The factors contributing to efficiency as well as inefficiency could be successfully tackled through proper and planned human resource development of personnel at all levels, in addition to well-designed management interventions, policy changes and congenial work environment and culture in research organizations.

References

Szilagyi, Andrew D. Jr. (1981), 'Management and Performance', Forseman & Company, Scott, USA, PP. 30