

A Comparative Analysis of Effectiveness of Training and Development Programme: A Case Study of Multi-Specialty Hospitals

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Abstract

Today organizations are facilitating the scope of learning and development for the employees apart from work related skills. To grow in tune with the changing needs of the society, organizations are designing the training programme in such a way that it extends the range of development way outside traditional work skills and knowledge, and creates far more exciting, liberating, motivational opportunities for the employees. The reason being, training contributes to the development of the human resources of the organization in order to achieve the organizational objectives. However, to achieve these objectives, training needs to be effectively managed so that right training is given to the right people, in the right form, at the right time and with right costs.

In the wake of post liberalization scenario, the health care industry is leading from the front. The giant business houses are showing keen interest for investing huge amount of money in this growing sector without compromising on the core values of noble and human offering of holistic healthcare facilities. The changing scenario of health care industry is witnessing a paradigm shift. At the backdrop of all these issues, the present research study is an attempt to study the effectiveness of training and development programme with special impetus on selected multi-specialty hospitals rendering their services at Guwahati, Assam, India and surrounding areas.

1. Introduction

Training and development [5] are two terms which are used interchangeably. Basically, training has been associated with improving the knowledge and skill of non-managerial employees in their present jobs and development is seen as an activity associated with the managers. Training and development is regarded as interactive, each complementing the other. Training and development has become an intrinsic part of the practice of HRM and a larger investment in people. Training improves the current and future employee performance by increasing their ability to perform through learning, usually by changing the attitude or by increasing the skills and knowledge. In fact, training is a learning process through the sequence of programmed behaviour and development is a related process that brings about growth of the personality.

Today, training [6] plays a key role in managing performance of the employees in an organization. It plays a crucial role in the performance management process. It is

considered as most important tool in the industry due to unparalleled developments in industrial technology. Many unskilled jobs are disappearing. To remain employed, the employees must engage in training programmes to upgrade themselves and to familiarize themselves with new processes and production techniques. The professionals need to keep-up with the current developments in their fields of specialization. Operation research and other newly emerging disciplines have developed a variety of new sophisticated techniques for which an average manager faces a major learning task if he is to keep up with his field. Moreover, human relations movement emphasizes the importance of providing the employees with conditions that permit and promote self-actualization. Employees work for many reasons, such as, for higher levels of material comfort, for recognition and prestige and for the work itself. Therefore, if future jobs are to be of some challenge and interest to those who hold them, then job occupant often will be required to attend training programme to bring them up to the level of skill required for the desired performance.

2. Review of Literature

Significant contribution and continuous research in the field of training and development has been carried out by many research scholars in the recent past. A selection of important research contributions and published by research scholars having valuable inputs are described as under:

In 2004, an Expert Group on Future Skills Needs, on behalf of National Training Advisory Committee (NTAC) [1] provided a report addressing some key issues like: Priority areas of skill deficiency - there is a need to boost the skills of employees with low skills and/or low qualifications. In many cases, there is a need to boost other generic skills such as problem solving and communication skills; deficiencies in management and business skills such as deficiency in business strategy, marketing and operations management have been identified; there is a need for increased investment in developing more advanced skills which are diversified such as software engineering, effective business use of information technology and sales management; there is a need for targeted interventions to address the deficiencies of older employee employees who had skills deficiencies often associated with low qualifications and small and medium enterprises commonly have deficiencies in their capability to manage training and learning effectively. Addressing these deficiencies should be a policy priority.

The key levers for improving training are - Approaches for boosting training with targeted programmes to group of individuals on the basis of deficiencies in skills, knowledge and educational qualifications etc. are required; Much greater involvement by the education sector in the provision of learning opportunities for those in employment is essential and to facilitate this, an increase level of partnership between industry and education sector is required; Changing the ground rules in favourable manner increases training activity and hence there should be proposals of incentives, individual learning accounts and system of paid learning leave for the employees and many bodies who are imparting adult education should include "workplace learning" and the Government should provide them a range of support services for developing continuous learning among those in employment.

Taylor [2], in 2003 suggested that good learning objectives are derived from needs assessment and cover all the different areas of learning and should be specific, measurable, achievable, realistic and take into consideration the context of the learners as well as the time available. He offered four basic rules for learning objectives. They should - be written in terms of learners. i.e. they should express what the learner will be able to do after the course or learning experience; identify the desired behavior by name and specify behavior which can be observed. It must be possible to assess the activity in some way; state the conditions or restrictions under which the desired behavior will occur and include criterion or performance standard which the learner must achieve to be considered acceptable. It is difficult to give universal guidelines for selecting more efficient training schedule. A common mistake in training design is to put too much content and overload learners. The content would be different focusing whether the training is on developing skills or on fostering knowledge. The key issues which Taylor discussed included: learning objectives must be clear, derive from the results of the training needs assessment and serve as a basis to assess training effectiveness; both needs and learning objectives should guide the design process; training performance can be enhanced by using the principles of participation, understanding, feedback, interest, emphasis and result; follow-up activities contribute to training effectiveness; training evaluation should look at the whole training cycle and not just at the course itself, including needs assessment, design, delivery and follow up.

Katherine Pasteur [3], in 2004 suggested that organizational learning is increasingly being viewed as key to improving development performance and impact. Katherine summarized that organizational learning is more than the transfer of knowledge around an organization; it implies additional analysis and judgment to translate knowledge into new insights and action.

Secondly, the implications of this type of learning for an organization are less to do with the knowledge management systems and processes, and more concerned with developing new tools for dialogue and holistic analysis and attitudes and skills for working collaboratively.

S. Juliana [4], in 2004 suggested that for successful implementation of training and development models, there are five major purposes of concern which are - analysis of training and development models; needs assessment; managerial techniques and essential business skills

To achieve these purposes, there includes for successful proven training and development models are selected – ADDIE Model, Human Performance Technology,

Performance Based Instructional Design and Total Quality Management. Research has shown that through TQM method, the organization shows improvement in communication, employee morale, productivity, process efficiency and has also reduced cost and waste. Juliana recommended that training helps people to recognize suggestion opportunities, act as team leader, practice delegation through participation and involvement and be creative and innovative.

Training develops skills and increases the knowledge of the employees thereby enhancing awareness. They do things right the first time by planning carefully and secure organizational and personal success.

3. Objectives of the Study

- (i) To determine whether the
 - employees are aware of the objectives of the training programme organized,
 - employees agree that the objectives of the training programme are achieved,
 - employees agree that the training programme is organized systematically,
 - employees are satisfied with the methodology used in the training programme,
 - employees agree that the objectives of the training programme match with their needs,
 - employees agree that the training programme is useful to their work situations,
 - employees agree that the training programme is useful to their off-the-work situations,
 - employees agree that the training programme is useful to their personal growth and development,
 - employees are satisfied with overall outcomes of the training programme,
- ii) To test the hypothesis whether training and development programme improves employee performance level and
- iii) To suggest and recommend measures for improvement of training and development programme.

Hypothesis of the Study

"The training and development programme does not improve the employee performance level"

4. Research Methodology

- a) A random sample of size 600 was drawn from the existing employees (1297 numbers) from three hospitals from various departments like Medical Records, Accounts, Marketing, Reception / EPBX, Housekeeping, Laboratory Technicians, Nursing, Administration and Doctors.
- b) A questionnaire was designed to collect primary data from the selected sample.
- c) The questionnaire was administered on the selected sample and the responses were sought.
- d) The primary data (587 responses were received from 600 employees) collected through the questionnaire were arranged in a tabulated form. The responses covered under each objective were analyzed and accordingly interpretations were made.
- e) On the basis of the responses, the hypothesis was tested with the help of Chi Square Test.
- f) On the basis of results, the suggestions and recommendations were offered.

5. Limitations of the Study

- a) Certain employees consider the study as an unnecessary mental gymnastics and do not bother to reply to the questionnaire.
- b) Some of the employees are reluctant to give time out of their busy schedule. As a result, they give incomplete answers or provide similar answers taking influences from the peers.
- c) Responses of the employees may not come true cent percent and error in judgment is bound to occur.

6. Organization Profile

6.1. GNRC Ltd

Guwahati Neurological Research Centre (GNRC) Ltd. was established in 1987 with active equity participation of AIDC, NEDFI, IDBI, IRCTC, Tata Tea Ltd. along with share holders from India and abroad. In 1997, GNRC, in collaboration with Madras Medical Mission, set up another super specialty institute in the name of GNRC Heart Institute to cater the competent service for cardiac ailments. In 2001, the GNRC set up the Institute of Critical Care with three sophisticated operation theatres. Today, GNRC is managing three full fledged super specialty hospitals with a team of 71 Doctors, 150 Nurses and more than 350 employees.

6.2. International Hospital

International Hospital, a modern high tech hospital was set up in the heart of Guwahati city in 1999 with a goal to reduce difficulties of the patients of North East seeking good healthcare facilities and to reduce the level of overall expenditure for tertiary care. With the emphasis on "People come first", the hospital has recruited more than 500 staff whose training and development is a challenge that the hospital has well prepared itself for.

6.3. Down Town Hospital

Commissioned in 1989, Down Town Hospital is a tertiary care referral centre with all facilities under one roof. It is the first multi-specialty corporate hospital in the Northeast. The hospital has presently more than 200 staffs, which is amalgamation of experienced professionals, Specialists, Consultants, Resident Doctors, Residents Medical Offices, GNM Nursing Staff, Paramedical Staff and a large number of Executives. Patients come from all the seven NE States and nearby countries as the hospital is located near the capital and is well connected by roads, railways and air.

7. Analysis and Interpretation on the findings of the Study

The questionnaire contained eleven questions with rating scale from 1 (strongly disagree) to 5 (strongly agree). The rating scale method was used because it was easy to understand, easy to use and permitted statistical tabulation of scores. The employees of the three multi specialty

hospitals found the questionnaire easy to handle and easy to respond.

7.1. Findings

- (i) To determine whether the employees are aware of the objectives of the training programme organized

Table 1. Results of responses of employees if they are aware of the objectives of the training programme

Rating Scale	% of responses of employees			
	GNRC Ltd. (GNRC)	International Hospital (IH)	Down Town Hospital (DTH)	Average
5	11.52	10.36	12.11	11.33
4	24.23	22.11	22.39	22.91
3	28.81	31.13	25.21	28.38
2	30.04	31.97	35.27	32.43
1	5.40	4.43	5.02	4.95
Total	100.00	100.00	100.00	100.00

Table 1 shows that, in regard to whether the employees are aware of the objectives of the training programme organized, 11.33% (average of 11.52% of GNRC, 10.36% of IH and 12.11% of DTH) of the employees responded as "strongly agree"; 22.91% (average of 24.23% of GNRC, 22.11% of IH and 22.39% of DTH) of the employees responded as "partially agree"; 32.43% (average of 30.04% of GNRC, 31.97% IH and 35.27% of DTH) of the employees responded as "partially disagree"; 4.95% (average of 5.40% of GNRC, 4.43% of IH and 5.02% of DTH) of the employees responded as "strongly disagree" and 28.38% (average of 28.81% of GNRC, 31.13% of IH and 25.21% of DTH) of employees gave neutral response.

- (ii) To determine whether the employees agree that the objectives of the training programme are achieved

Table 2. Results of responses of employees if they agree that the objectives of the training programme are achieved

Rating Scale	% of responses of employees			
	GNRC Ltd. (GNRC)	International Hospital (IH)	Down Town Hospital (DTH)	Average
5	4.12	2.03	2.06	2.74
4	10.29	12.54	10.31	11.05
3	23.46	14.61	20.17	19.41
2	37.04	34.41	31.96	34.47
1	25.09	36.41	35.50	32.33
Total	100.00	100.00	100.00	100.00

Table 2 shows that, in regard to whether the employees agree that the objectives of the training programme are achieved, 2.74% (average of 4.12% of GNRC, 2.03% of IH and 2.06% of DTH) of the employees responded as "strongly agree"; 11.05% (average of 10.29% of GNRC, 12.54% of IH and 10.31% of DTH) of the employees responded as "partially agree"; 34.47% (average of 37.04% of GNRC, 34.41% IH and 31.96% of DTH) of the employees responded as "partially disagree"; 32.33% (average of 25.09% of GNRC, 36.41% of IH and 35.50% of DTH) of the employees responded as "strongly disagree" and 19.41% of employees gave neutral response.

(iii) To determine whether the employees agree that the training programme is organized systematically

Table 3. Results of responses of employees if they agree that the training programme is organized systematically

Rating Scale	% of responses of employees			
	GNRC Ltd. (GNRC)	International Hospital (IH)	Down Town Hospital (DTH)	Average
5	3.29	2.02	1.03	2.12
4	11.53	13.36	14.47	13.12
3	22.63	17.00	14.43	18.02
2	39.51	34.64	32.96	35.70
1	23.04	32.98	37.11	31.04
Total	100.00	100.00	100.00	100.00

Table 3 shows that, in regard to whether the employees agree that the training programme is organized systematically, 2.12% (average of 3.29% of GNRC, 2.02% of IH and 1.03% of DTH) of the employees responded as “strongly agree”; 13.12% (average of 11.53% of GNRC, 13.36% of IH and 14.47% of DTH) of the employees responded as “partially agree”; 35.70% (average of 39.51% of GNRC, 34.64% IH and 32.96% of DTH) of the employees responded as “partially disagree”; 31.04% (average of 23.04% of GNRC, 32.98% of IH and 37.11% of DTH) of the employees responded as “strongly disagree” and 18.02% of employees gave neutral response.

(iv) To determine whether the employees are satisfied with the methodology used in the training programme

Table 4. Results of responses of employees if they are satisfied with the methodology used in the training programme

Rating Scale	% of responses of employees			
	GNRC Ltd. (GNRC)	International Hospital (IH)	Down Town Hospital (DTH)	Average
5	15.64	17.81	12.37	15.27
4	12.34	11.74	10.31	11.46
3	36.21	38.46	41.24	38.64
2	16.87	17.81	19.58	18.09
1	18.94	14.18	16.50	16.54
Total	100.00	100.00	100.00	100.00

Table 4 shows that, in regard to whether the employees are satisfied with the methodology used in the training programme, 15.27% (average of 15.64% of GNRC, 17.81% of IH and 12.37% of DTH) of the employees responded as “strongly agree”; 11.46% (average of 12.34% of GNRC, 11.74% of IH and 10.31% of DTH) of the employees responded as “partially agree”; 38.64% (average of 36.21% of GNRC, 38.46% IH and 41.24% of DTH) of the employees responded as “partially disagree”; 18.09% (average of 16.87% of GNRC, 17.81% IH and 19.58% of DTH) of the employees responded as “partially disagree”; 16.54% (average of 18.94% of GNRC, 14.18% of IH and 16.50% of DTH) of the employees responded as “strongly disagree” and 38.64% of employees gave neutral response.

(v) To determine whether the employees agree that the objectives of the training programme match with their need

Table 5. Results of responses of the employees whether they agree that the objectives of the training programme match with their need

Rating Scale	% of responses of employees			
	GNRC Ltd. (GNRC)	International Hospital (IH)	Down Town Hospital (DTH)	Average
5	7.95	8.36	9.89	8.73
4	27.65	28.98	25.27	27.30
3	16.67	15.67	16.48	16.27
2	28.41	27.56	29.67	28.55
1	19.32	19.43	18.69	19.15
Total	100.00	100.00	100.00	100.00

Table 5 shows that, in regard to whether the employees agree that the objectives of the training programme match with their need, 8.73% (average of 7.95% of GNRC, 8.36% of IH and 9.89% of DTH) of the employees responded as “strongly agree”; 27.30% (average of 27.65% of GNRC, 28.98% of IH and 25.27% of DTH) of the employees responded as “partially agree”; 28.55% (average of 28.41% of GNRC, 27.56% IH and 29.67% of DTH) of the employees responded as “partially disagree”; 19.15% (average of 19.32% of GNRC, 19.43% of IH and 18.69% of DTH) of the employees responded as “strongly disagree” and 16.27% of employees gave neutral response.

(vi) To determine whether the employees agree that the training programme is useful to their work situations

Table 6. Results of responses of the employees whether they agree that the training programme is useful to their work situations

Rating Scale	% of responses of employees			
	GNRC Ltd. (GNRC)	International Hospital (IH)	Down Town Hospital (DTH)	Average
5	17.70	8.50	10.31	12.17
4	14.40	19.84	21.65	18.63
3	8.23	10.12	15.46	11.27
2	27.57	24.70	23.71	25.33
1	32.10	36.84	28.87	32.60
Total	100.00	100.00	100.00	100.00

Table 6 shows that, in regard to whether the employees agree that the training programme is useful to their work situation, 12.17% (average of 17.70% of GNRC, 8.50% of IH and 10.31% of DTH) of the employees responded as “strongly agree”; 18.63% (average of 14.40% of GNRC, 19.84% of IH and 21.65% of DTH) of the employees responded as “partially agree”; 25.33% (average of 27.57% of GNRC, 24.70% IH and 23.71% of DTH) of the employees responded as “partially disagree”; 32.60% (average of 32.10% of GNRC, 36.84% of IH and 28.87% of DTH) of the employees responded as “strongly disagree” and 11.27% of employees gave neutral response.

(vii) To determine whether the employees agree that the training programme is useful to their off-the-work situations

Table 7. Results of responses of the employees whether they agree that the training programme is useful to their off-the-work situations

Rating Scale	% of responses of employees			
	GNRC Ltd. (GNRC)	International Hospital (IH)	Down Town Hospital (DTH)	Average
5	16.65	10.34	10.99	12.66
4	14.02	17.67	19.78	17.16
3	9.10	9.92	15.39	11.47
2	26.52	29.31	25.27	27.03
1	33.71	32.76	28.57	31.68
Total	100.00	100.00	100.00	100.00

Table 7 shows that, in regard to whether the employees agree that the training programme is useful to their off-the-work situations, 12.66% (average of 16.65% of GNRC, 10.34% of IH and 10.99% of DTH) of the employees responded as “strongly agree”; 17.16% (average of 14.02% of GNRC, 17.67% of IH and 19.78% of DTH) of the employees responded as “partially agree”; 27.03% (average of 26.52% of GNRC, 29.31% IH and 25.27% of DTH) of the employees responded as “partially disagree”; 31.68% (average of 33.71% of GNRC, 32.76% of IH and 28.57% of DTH) of the employees responded as “strongly disagree” and 11.47% of employees gave neutral response.

(viii) To determine whether the employees agree the training programme is useful to their personal growth

Table 8. Results of responses of the employees whether the employees agree the training programme is useful to their personal growth

Rating Scale	% of responses of employees			
	GNRC Ltd. (GNRC)	International Hospital (IH)	Down Town Hospital (DTH)	Average
5	20.19	14.17	16.50	16.95
4	15.23	16.60	22.68	18.17
3	9.03	9.72	13.40	10.72
2	24.69	26.72	21.65	24.35
1	30.86	32.79	25.77	29.81
Total	100.00	100.00	100.00	100.00

Table 8 shows that, in regard to whether the employees agree the training programme is useful to their personal growth and development, 16.95% (average of 20.19% of GNRC, 14.17% of IH and 16.50% of DTH) of the employees responded as “strongly agree”; 18.17% (average of 15.23% of GNRC, 16.60% of IH and 22.68% of DTH) of the employees responded as “partially agree”; 24.35% (average of 24.69% of GNRC, 26.72% IH and 21.65% of DTH) of the employees responded as “partially disagree”; 29.81% (average of 30.86% of GNRC, 32.79% of IH and 25.77% of DTH) of the employees responded as “strongly disagree” and 10.72% of employees gave neutral response.

(xi) To determine whether the employees are satisfied with overall outcomes of the training programme

Table 9. Results of responses of the employees whether the employees are satisfied with overall outcomes of the training programme

Rating Scale	% of responses of employees			
	GNRC Ltd.	International Hospital	Down Town Hospital	Average
5	16.05	13.77	10.31	13.38
4	14.40	16.60	12.37	14.46
3	26.75	28.81	29.90	28.48
2	32.92	27.94	34.02	31.63
1	9.88	12.88	13.40	12.05
Total	100.00	100.00	100.00	100.00

Table 9 shows that, in regard to whether the employees are satisfied with overall outcomes of the training programme, 13.38% (average of 16.05% of GNRC, 13.77% of IH and 10.31% of DTH) of the employees responded as “strongly agree”; 14.46% (average of 14.40% of GNRC, 16.60% of IH and 12.37% of DTH) of the employees responded as “partially agree”; 31.63% (average of 32.92% of GNRC, 27.94% IH and 34.02% of DTH) of the employees responded as “partially disagree”; 12.05% (average of 9.88% of GNRC, 12.88% of IH and 13.40% of DTH) of the employees responded as “strongly disagree” and 28.48% of employees gave neutral response.

8. Suggestions on the findings of the study

On the basis of the findings of the study, it may be suggested that the training and development programme of the three multi-specialty hospitals at present, needs improvements in order to create an environment where employees feel confident and have complete faith in the process. The employees must feel that the training and development programme aims to develop their competency, improves their productivity and correctly identifies their future needs. The programme also aims to improve the organizational communication process and produce a mechanism so that their strengths and weaknesses are identified and also offer an opportunity to perform and achieve desired results.

The suggestions on various aspects of training and development programme in the three multi-specialty hospitals are as under:

- The basic objective of training is to improve operative skills, interpersonal skills, decision making skills or combination of these skills in order to assist the employees to function more effectively in their present positions. Employees’ awareness towards the objectives of the training programme helps the organization to create positive environment and increase the possibility to achieve the objectives of the training programme. The hospitals should therefore set the training objectives from the point of view of the employees and create awareness among them in order to develop competency on varied field.
- Second, the basic objective of training is to establish a match between the individual employee and his job. Therefore, evaluation of training programme is essential to determine the ability of the participant in the training programme. The hospitals while gauging the

effectiveness of their training programme, should measure four categories of outcomes - reactions, learning, behavior and results and more importantly, on which the objectives of the training programme should also framed on these four categories and must ensure that the objectives are achieved.

- Third, a systematic training programme is an invaluable investment in the human resources of an organization. Many organizations have realized the need for training, created infrastructure so that training activities can be carried out in a systematic and continuous manner. The hospitals should follow a systematic training programme because the advantages of systematic training programme always results better performance, improved quality, less learning period, high morale and favourable organizational climate.
- Fourth, an organization needs to select a method or mix of methods to meet the training needs. The selection of methods depend on variety of factors like, purpose of training, relevance to participants, nature of contents, level of trainees, competence of the trainers etc. The hospitals should adopt a training method by which the employees can improve performance, quality of work, morale, personal growth etc. There should be link between training outcomes and organizational and other needs.
- Fifth, while deciding on the training objectives, the organization should focus on organizational analysis i.e. determination of organizational goals, its resources and allocation of the resources, operational analysis i.e. focus on tasks or jobs and man analysis i.e. review of the knowledge, attitudes and skills of the employee in each position. The hospitals should decide and design the training programme on the basis of the organizational, operational and man analysis so that by administering the training programme, the overall organizational performance can be improved as well as it helps the employees in any work situations, off-the-work-situations by updating them with the latest concepts, information, techniques etc. The hospitals should also aim to develop competency among the employees in new areas by imparting training on creativity and innovativeness which will match with their needs.
- Sixth, training improves employee’s ability, knowledge and skills that prevent their obsolescence. This is nothing but growth orientation of an employee that changes employee attitude that helps to improve interpersonal relations. Employees experience a range of both positive and negative emotions at work. When an emotion like anger, frustration or anxiety is experienced, the human brain is programmed to respond to the threat and an emotional response is triggered and that leads to do things he later regrets. Therefore, the hospitals should design their training programme in such a way that the employees become emotionally intelligent in order to keep themselves under control to have good relationships with their colleagues who ultimately are useful to their personal growth and development.
- Last, but not the least, the specialty hospitals should develop and design the training programme in such a manner that it teaches the new employees the basic skills to perform in their jobs and brings about growth of their personality and help individuals to progress towards maturity and self-actualization of their potentials. Importantly, the training programme should

improve quality of work, morale, personal growth, organizational climate. The factors like technological changes, increasing demand for skilled manpower, increasing uncertainties, global competition, sub-optimal performance of the organization etc. should underline the need for training.

9. Test of Hypothesis: Chi Square Test

The hypothesis of the study was - “The training and development programme does not improve the employee performance level”

Chi Square Test has been used to test the null hypothesis considered for this study.

Chi Square test

The formula of Chi Square (χ^2) test was used in the study as under:

$$\chi^2 = \sum \frac{(O - E)^2}{E}$$

Where ‘O’ is observed frequency and E is the corresponding expected frequency.

The responses of the employees of the three hospitals in regard to whether the training and development programme improves employee performance level are shown in the Table 10.

Table 10. Responses of the employees on whether training and development programme improves employee performance level (Source: Primary data)

Sl. No.	Name of the hospital	Responses		Total
		Yes	No	
1	GNRC Ltd.	97	167	264
2	International Hospital	81	151	232
3	Down Town Hospital	34	57	91
Total		212	375	587

The responses of the employees shown in Table 10 are arranged in a tabulated form (Table 11) for computation of χ^2

Table 11. Calculation of observed frequency and expected frequency (Source: Primary data; Totals may agree due to rounding off the figures)

Observ-ed no. of respon-ses (O)	Expect-ed no. of respon-ses (E)	E	(O - E)	$\frac{(O - E)^2}{E}$
97	$\frac{212 \times 264}{587}$	95.35	+1.65	0.029

81	$\frac{212 \times 232}{587}$	83.79	-2.79	0.093
34	$\frac{212 \times 91}{587}$	32.87	+1.13	0.039
167	$\frac{375 \times 264}{587}$	168.65	-1.65	0.016
151	$\frac{375 \times 232}{587}$	148.21	+2.79	0.053
57	$\frac{375 \times 91}{587}$	58.13	-1.13	0.022
Total				0.252

Therefore,

$$\chi^2 = \sum \frac{(O - E)^2}{E} = 0.252; \text{ (Degree of freedom is 2)}$$

The calculated value of χ^2 for 2 degrees of freedom at 5 percent level of significance is 0.252 and the corresponding table value is 5.99. Since, the calculated value of χ^2 (0.252) is much less than the table value (5.99), hence it is insignificant. The result, thus, supports the hypothesis, i.e. the hypothesis is accepted. Hence, the study has revealed that the training and development programme does not improve the employee performance level.

10. References

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