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ARTICLE INFO

Shepherd Dhliwayo and Lilian Kerubo Nyanumba (2014). An evaluation of an on the job training programme at a UK based public health care company. *Problems and Perspectives in Management*, 12(2-1)

RELEASED ON

Friday, 20 June 2014

JOURNAL

"Problems and Perspectives in Management"

FOUNDER

LLC “Consulting Publishing Company “Business Perspectives”



NUMBER OF REFERENCES

0



NUMBER OF FIGURES

0



NUMBER OF TABLES

0

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An evaluation of an on the job training program at a UK based public health care company

Abstract

Many organizations the world over spent considerable amounts of resources on training. The effectiveness of these training programs is often not known due to non-measurement, despite the fact that recent studies show that training evaluation is far more important today than in the past. The importance of this study is that it assesses a training program to establish its effectiveness. Literature shows that, such evaluations are not always carried out and if they are, the results are usually for internal consumption only. The primary aim of this study was to evaluate the effectiveness of an “on the job training” program at a health care company. The secondary aim was to find if gender or job function had an effect on the perception on training effectiveness. A convenient sample of 110 employees was chosen for analysis. The Kirkpatrick model was used to evaluate the program. Questionnaires based on the model were administered face to face to all the 110 employees. A total of 74 questionnaires were returned for analysis. The research found out that the training offered was not effective in the areas assessed, learning, behavior, reaction and result. It also found out that neither gender nor job function had a significant effect on the employees perception on training effectiveness.

Keywords: on the job training, training effectiveness, Kirkpatrick, job function, gender.

JEL Classification: M10, M12.

Introduction

In today’s business world, the competitiveness of the organization is now largely dependent on the development of a skilled and educated workforce (Khalid, Ashraf, Yousaf & Rehman 2011). One way of developing employees is through an effective on the job training program. Training in general, results in increased employee confidence and creativity which in turn enhance organizational productivity and competitiveness (Bartel, 2000; Saedon, Salleh, Balakrishnan, HE Imray & Saedon, 2012).

In order to have a skilled workforce, organizations the world over invest substantial amounts of money and time in staff development (Patel, 2010). Through training evaluation such investments can be justified if the results are positive (Aghazadeh, 2007). However the problem is, training evaluation is not always carried out (Khalid, Ashraf, Azeem, Ahmed and Ahmad, 2012). Evaluation is not done, despite the fact that professional training is costly for the contemporary organization (Grossman & Salas, 2011). Athari and Zairi (2000) suggest that evaluation is not done frequently because it is considered by organizations, to be less important. The other reason, according to Khalid et al. (2012) is the scarcity of valid evaluation techniques and instruments. This study will carry out an evaluation of an on the job training program at a UK based company.

The other problem is that in many cases where evaluations are carried out, the training programs are ineffective. According to a study conducted by the American Society for Training and Development (ASTD, 2003), American companies for example, make large investments on worker training, yet there

is significant evidence that training produces little real impact on worker job performance. A number of researchers have in fact concluded that most of the money currently spent on training is wasted, since as little as 10%-15% of what is learned in training ever finds its way to the job (Armour, 1998; Sacks & Burke, 2012). Kumpikaité (2008), Pas, Peters, Doorewaard, Eisinga & Lagro-Janssen (2011) confirm that the training process can be very expensive hence, according to Nanda (2009) the need for an effective quality-training program that adequately addresses the diverse skill needs of employees in different roles in the organization. The increased competition for scarce resources within organizations makes it critical to provide justification for money spent on training (Philips & Philips, 2001). It is important therefore to evaluate the effectiveness of training programs organizations invest in.

Research aim and objectives. The main aim of this study was to measure the effectiveness of an on the job training program at a public health company using the Kirkpatrick method. The secondary aim was to find out whether the perceived effectiveness/non effectiveness of the training is dependent on (1) gender and (2) job function (the department in which an employee is engaged). Research has always shown that gender and knowledge base may affect perceptions.

Importance of study. Training evaluation has been found to be far more important today than in the past, Thorne and Mackey (2007) and training proves fruitful if evaluation becomes part and parcel of the planning activity (Brinkerhoff, 2006). The study reinforces the need for both private and public entities to account for the investments in training. Lambert, Vero & Zimmer-

mann (2012, p. 166) notes that issues of “individual motivation to train on one hand and of individual training outcomes on the other still remain under-explored”. This study contributes to the exploration by studying the effectiveness of a training program at the public health company. To our knowledge, the training program in question had not been evaluated before.

The study will present first, the literature review, the research method and then findings. The findings are then discussed before concluding.

1. Literature review

Training is a planned systematic instructional activity aimed at improving employees’ performance (Batt, 2000) through the positive modification of attitude and knowledge (Nel, 2006). Training is part of the human resource process which includes performance development, recruitment and selection (Armstrong, 2010). Human resource literature emphasises that individual learning leads to an improvement in organizational capability, Watkins and Marsick (1993), and it is the recognition of the significance of training in recent years that has resulted in the heavy investment in employee development (Armstrong, 2010). As noted by Kauffeld and Lehmann-Willenbrock (2010) organizations spend large amounts of resources to support staff development which is necessary given the turbulent times organizations are currently operating in. The continuously changing environment demands a knowledgeable, well skilled workforce and this makes well trained staff to be of high strategic value to any organization (Brown & Seidner, 1998). However as alluded to in literature due to non-measurement of training, its effectiveness remains unknown in many cases. This should be disturbing to employees because it hampers their personal development and strategic value within the organization.

McGuire, Garavan, O’Donnell and Cseh (2008), argue that training benefits the business and the trained individual; so training becomes the crucial linkage between the individual and the organization’s overall business strategy. Grohmann and Kauffeld (2013) argue that employees expect high quality training to enhance opportunities for skills development and professional growth. For organizations, training evaluation can justify the financial inputs made and can be used as a marketing tool to attract new candidates and retain qualified employees. As pointed out by Jones (2002), Saks and Burke (2011) most companies are pulling resources towards training as a way of enhancing their strategic goals. These goals, according to Samir (2008) include improved productivity, quality and efficiency.

Training is important because, it leads to increased individual level of confidence (Thorne and Mackey,

2007). Morale and team spirit is in turn raised as employees realize that they are making a valued contribution to the success of the organization. Olaniyan and Ojo (2008) note that although employees are hired with specific set of skills for particular tasks, further development of skills and knowledge on a continuous basis is a must. This is because the changing environment constantly demands new skills and training become a way of keeping up and enhancing their strategic value in the organization.

Critical components of employee development require managers to establish goals and to provide feedback on training and performance (Park, Young and Mclean, 2008). Training interventions are then measured for their effectiveness against these goals. Feedback is necessary as the trainer can clearly define what particular results have been achieved and how they can be improved. Trainees need to know how well they are doing at all stages in their training so as to learn effectively and improve their performance. Saks and Burke (2011) point out that several studies have found out that receiving feedback on one’s performance after a training program is positively related to one’s perception of learning transfer.

Lim and Johnson (2002), Saedon et al. (2012), note that experts believe that consulting employees before training, getting management support (other resources and time) and positive feedback during and after training is key to effective training. According to the same authors feedback on training increases motivation and self-awareness among staff, translating into positive behavior change which leads to increased productivity. As posited by Salas, Tannenbaum, Kraiger & Smith-Jentsch (2012) organizations invest in training because they believe a skilled workforce represents competitive advantage; therefore decisions about what to train, how to train, and how to implement and evaluate training should be informed by the best information science has to offer.

The Kirkpatrick’s 4 levels approach to training evaluation has been used for this research, despite its short comings. This is because it is one of the most widely used and popular model for the evaluation of training programs (Employment Security Department Washington State, 2010; Clark, 2004; Stetar, 2003; Laing & Andrews, 2011; Blau, Gibson, Bentley & Chapman, 2012). Khalid et al. (2011), Nickols (2005), Saks and Burke (2011) consider the model great for trying to evaluate training effectiveness in a “scientific” way and according to Nickols (2005) the Kirkpatrick model is found in many other evaluation approaches. A summary of the levels is discussed next and more detail provided under methodology.

The four levels of Kirkpatrick evaluation models are as follows:

Level 1 – Reaction: involves how the trainees reacted to the training, for instance their feelings about the structure and content of training and the methods employed.

Level 2 – Learning: mainly examines the knowledge that the participant gained.

Level 3 – Behavior: demonstrates and evaluates the kind of skills and competencies that the participants gained. It examines whether a person can apply what was learnt.

Level 4 – Result: this should clearly demonstrate the trainee's ability to perform better as a result of the training undertaken.

The study therefore proposes, *Proposition 1 (P1)*: that a majority of employees consider on the job training to be effective in terms of reaction, learning, behavior and result.

Proposition 1.1 (P1.1): The majority of employees reacted positively to the on the job training offered (reaction).

Proposition 1.2 (P1.2): The majority of employees consider learning to have taken place during the on the job training offered (learning).

Proposition 1.3 (P1.3): The majority of employees think they could apply to their current jobs what was learnt in the training (behavior).

Proposition 1.4 (P1.4): The majority of employees consider the training to have enhanced their performance at work (result).

Dunlosky, Rawson, Marsh, Nathan & Willingham (2013) note that literature suggest four moderating variables, *materials* (content), *learning conditions* (e.g. facilities), *learner characteristics* (e.g., gender and prior domain knowledge) and *criterion tasks* (e.g., achievement tests or problem solving) when assessing the effectiveness of learning techniques. These closely relate to the Kirkpatrick tool used in this study. *Materials* and *learning conditions* relate to Kirkpatrick's *reaction* which involves the content, structure and methods employed in the training. *Criterion tasks* relate to Kirkpatrick's levels 2, 3 and 4. This examines the actual knowledge transfer and the resultant behavioral changes. The learner characteristics do not clearly "slot" into the 4 levels since they involve the learner make-up not covered in the Kirkpatrick model.

We therefore isolated the learner moderating variables "gender" and "prior domain knowledge" for further analysis. We believe that the perception of

training effectiveness may be influenced by gender and the job function of an individual.

We assume that a department usually houses individuals with similar prior domain knowledge. As pointed out by Lim and Morris (2006) a trainee's job function is considered an important transfer variable in on the job training.

It is expected that there is no significant difference between the way males and females view the different training effectiveness measures. It is also expected that employees in different job functions (departments) would not view the same training differently. The following propositions are therefore advanced:

Proposition 2 (P2): states that there is no significant difference between the mean values of each gender and each of the training effectiveness measures.

Proposition 2.1 (P2.1): Reaction.

Proposition 2.2 (P2.2): Learning.

Proposition 2.3 (P2.3): Behavior.

Proposition 2.4 (P2.4): Result.

Proposition 3 (P3): states that there is no significant difference between the mean values of the different job functions and each of the training effectiveness measures.

Proposition 3.1 (P3.1): Reaction.

Proposition 3.2 (P3.2): Learning.

Proposition 3.3 (P3.3): Behavior.

Proposition 3.4 (P3.4): Result.

The methodology used to test these propositions is discussed next.

2. Methodology

The Kirkpatrick's 4 levels approach to training evaluation was used for this research to measure training effectiveness. A cross sectional approach was adopted to assess the effect the given training had on the respondents.

The research was conducted at a company in the healthcare industry operating indifferent cities in the United Kingdom. The company had a total of 1400 employees across the UK. For convenience purposes, one operating center was chosen for its proximity to the researchers making it easier to collect data.

The chosen center had a staff compliment of 110 and questionnaires were administered by hand to all the employees who had undertaken on the job training at the company in the past 12 months. The

sample included all personnel in all departments. Out of the 110 people, 74 responded within two weeks, a good response rate of 67%.

All the respondents underwent the same training, conducted under similar conditions by the same instructors. The training comprised; fire, food and hygiene, nutrition, health and safety and control of substances hazardous to health.

The questionnaire used consisted of two parts, demographic factors – age, education, period of employment, gender and job function and the second part consisted of the different levels of the Kirkpatrick model.

Level 1: Reaction. It involves how the trainees reacted to the training, in terms of their feelings about the structure, content and the methods employed. It also examined how the participant felt about the following questions:

Whether the training session was enjoyable, training relevancy, suitability of venues, the level of trainee participation in their training (kinaesthetic levels). These aspects were measured using a 4-point Likert scale ranging from very satisfied (4) to not satisfied (1).

Level 2: Learning. This level examines the knowledge that the participant gained from the training. The issue is whether the trainees learnt what they intended to learn and if they experienced what they were supposed to experience from the training. The extent to which the trainees have learned and experienced was measured using a 4 point Likert scale ranging from (4) a lot to (1) none.

Level 3: Behavior. Behavior is the demonstration or application at the work place of the skills and competencies learnt. Employees were asked the extent to which they applied on the job what they had learnt. This was also measured on a 4 point Likert scale, from a great extent (4) to none (1).

Level 4: Results. This level assesses the impact the training has had on the job performance of the employees. For example staff were asked the extent the training received had resulted in improved individual performance such as quality ratings. A similar 4-point Likert scale measurement as with level 3 was applied.

3. Findings

The descriptive results are presented first then analysis of variance (ANOVA) second. The descriptive statistics show that 84% of the employees had been in the company for less than 5 years with the remainder having been in the organization for periods of between six and fifteen years. This result

show that most of the employees have been in the organization for a relatively short time of less than 5 years. This is a fair reflection of the temporary nature of employment contracts of the sector in the UK.

There is a relatively fair distribution of age groups within the organization, with 39% in the 18-30 age group; 27% in the 31-40 age group and 34% in the 41-50 age group. Sixty six percent (66%) of the population is under 40, reflecting a relatively young work force. Males comprised 43% of the work force and females 57%. Highest level of education; 72% had either a Diploma or Degree with the remainder being in possession of either “O” level or “A” level school certificates. The high level of education is expected given that the health care industry is a highly specialized field requiring relatively higher levels of education. With regards to job function, the bulk of the respondents were social health care staff 51%, followed by the auxiliary staff 27% then nursing staff 17%. The remainder is made up of administration 2%, management 2% and maintenance staff 1%. A validity test was carried out on the data. Though the Cronbach alpha is low at 0.502 and is below the recommended measure of at least 0.6 it is still acceptable since it is at least 0.50.

Descriptive statistics was used to assess proposition 1 (P1) which assumed that the majority of employees would have a positive view of the effectiveness on each of the Kirkpatrick’s four levels. The results of this proposition are shown in Tables 1 to 4.

Table 1. Reaction frequencies

		Responses		Percent of cases
		N	Percent	
Reaction evaluation	Not satisfied	12	1.9%	15.6%
	Little satisfaction	42	6.8%	54.5%
	Satisfied	262	42.5%	340.3%
	Very satisfied	300	48.7%	389.6%
Total		616	100.0%	800.0%

Results in Table 1 show that the majority (91.2%) of the trainees were satisfied with the training. This means that they found the training to be relevant, the feedback and time allocated to the training adequate. Proposition 1.1 is therefore accepted.

Table 2. Learning frequencies

		Responses		Percent of cases
		N	Percent	
Learning evaluation	None	6	2.6%	7.8%
	Very Little	13	5.6%	16.9%
	Reasonable	107	46.3%	139.0%
	A lot	105	45.5%	136.4%
Total		231	100.0%	300.0%

Results in Table 2 show that 91.8% considered learning to have taken place and 8.2% felt that very little or no learning had taken place. Proposition P1.2 is therefore accepted for the majority of employees think they had learned from the training. The on the job training had been effective therefore, in terms of learning.

Proposition 1.3 was also accepted, because as shown in Table 3, only 15.6% of the trainees indicate that there was very little or no positive behavioral change as a result of the training. The majority, 84.5% are of the opposite opinion.

Table 3. Behavior frequencies

		Responses		Percent of cases
		N	Percent	
Behavior evaluation	None	12	3.1%	15.6%
	Very little	48	12.5%	62.3%
	Considerable extent	175	45.5%	227.3%
	Great extent	150	39.0%	194.8%
Total		385	100.0%	500.0%

Proposition 1.4 is also accepted. As shown in Table 4, the majority (87.1%) of the employees felt that positive results had been registered in work performance as a result of the training.

Table 4. Results frequencies

		Responses		Percent of cases
		N	Percent	
Results evaluation	None	15	3.2%	19.5%
	Very little	44	9.5%	57.1%
	Considerable extent	212	45.9%	275.3%
	Great extent	191	41.3%	248.1%
Total		462	100.0%	600.0%

According to Batt (2000) training is an activity aimed at improving employees’ performance (results) and as stated by Nel (2006), Armstrong (2010) this is done through the positive modification of attitude, behavior and knowledge. The results clearly show that the training offered did meet the employees’ expectations and was therefore effective. It can also be assumed that the resources ploughed into training did yield the desired results. As concluded by Aguinis and Kraiger (2009) existing research provides strong evidence that well-designed training programs benefit individuals, teams, organizations and society, and that training can be most beneficial where lessons learned from training is applied to the design and delivery of programs.

One aspect which is critical in ensuring training effectiveness is feedback. Though Weller, Jones, Merry, Jolly & Saunders (2009) point out that

feedback is offered less frequently than is desirable, Saedon et al. (2012) posits that, trainees find feedback to be the most useful aspect of work based assessments and suggests that greater emphasis should be placed on feedback in order to improve training effectiveness.

Propositions P2 and P3 were measured using the analysis of variance (ANOVA) method. In order to find out the extent of the effectiveness of the training offered at the company, the chi square test of association using the original categories “very satisfied” to “not satisfied” was conducted. The test of association was carried out between gender and the components of training effectiveness, namely, reaction, learning, behavior and result. This approach was used because there are two groups (male and female) to be compared. The assumption of this method is that the mean score for one group (female) equals the other (male).

The analysis of variance (ANOVA) was also used to test if there was a significant difference between the different job functions with regards to perception of training effectiveness. The one way ANOVA method assumes that at least one mean is not equal to the rest. The two independent variables, gender and job function were chosen after the descriptive statistical analysis reflected that they would possibly have an effect on training effectiveness compared to the other demographic factors.

Proposition 2: There is no significant difference between the mean values of each gender and each of the training effectiveness measures; P2.1 reaction; P2.2 learning; P2.3 behavior; and P2.4 result.

The results (Table 5) show that there is no significant difference between the mean values of males and females with regards to all aspects of training effectiveness tested, at a 0.05 significance level. This is so because all the *p*-values reaction (0.204), behavior (0.411), learning (0.669), and result (0.907) are bigger than > 0.05 and therefore not significant. As shown also in Table 5, the Levin *t*-statistic for reaction, $t = 0.647$ and $p = 0.519 > 0.05$, behavior $t = 0.214$ and $p = 0.831 > 0.05$; learning $t = 0.346$ and $p = 0.730 > 0.05$ and the *t*-statistic for result = 0.519 and $p = 0.605 > 0.05$ make us not to reject the proposition. All the *p*-values for testing training effectiveness are bigger than > 0.05 and therefore not significant. The entire proposition P2 (P2.1 to P2.4) is therefore accepted.

The result shows that gender is not a significant determinant of how training effectiveness is perceived. Males and females viewed the training effectiveness in the same way.

Table 5. Gender and training effectiveness; Levine's *t*-test

Attribute	Assumption for variances	Levine's test for equality of variance		<i>t</i> -test for equality of means		95% confidence interval of difference of means	
		<i>F</i>	<i>p</i> -value	<i>t</i> -statistic	<i>p</i> -value	Lower limit	Upper limit
Reaction	Equal	1.644	0.204	0.647	0.519	-0.07285	0.14296
	Not equal			0.660			
Behavior	Equal	0.684	0.411	0.214	0.831	-0.12602	0.15639
	Not equal			0.210			
Learning	Equal	0.185	0.669	-0.346	0.730	-0.19887	0.14004
	Not equal			-0.351			
Result	Equal	0.014	0.907	0.519	0.605	-0.09664	0.16476
	Not equal			0.517			

Note: Confidence interval: 95%.

Proposition 3 (P3): Stated that there is no significant difference between the mean values of different job functions and each of the training effectiveness measures; P3.1 reaction; P3.2 learning; P3.3 behavior and P3.4 result.

As shown in Table 6, all the *p*-values 0.061 (reaction), 0.867 (learning) 0.068 (behavior) and 0.649 (result) > 0.05. Each level is therefore not statistically significant because the *p*-value is bigger

than 0.05. This means that the distribution of mean training effectiveness is the same across the job functions.

The employees in different job functions do not have significantly different experience of training effectiveness. The finding is in line with the assertion by Lim and Morris (2006) that previous research has not found job function to be a significant moderating factor in training effectiveness.

Table 6. Job function and training effectiveness ANOVA

Attribute	Reaction	Sum of squares	Df	Mean square	<i>F</i>	Sig.
Reaction	Between groups	0.570	5	0.114	2.231	0.061
	Within groups	3.631	71	0.051		
	Total	4.201	76			
Learning	Between groups	0.263	5	0.053	0.371	0.867
	Within groups	10.058	71	0.142		
	Total	10.320	76			
Behavior	Between groups	0.946	5	0.189	2.162	0.068
	Within groups	6.214	71	0.088		
	Total	7.159	76			
Result	Between groups	0.277	5	0.055	0.669	0.649
	Within groups	5.875	71	0.083		
	Total	6.152	76			

Note: Confidence interval: 95%.

The results from propositions P2 and P3 clearly show that there is no difference in the way males and females viewed the training effectiveness and neither does one's job function affect perception. Overall, the training was considered effective by most trainees irrespective of gender or job function.

Discussion

As shown in literature, few organizations carry out training evaluations despite large amounts of money spent on training. The study assessed an on the job training program to establish its effectiveness.

The study found on the job training to be effective in the four levels measured. This implies that the content was relevant and learning took place.

Trainees were able to apply what was learnt and the training improved their work performance. To ensure that training is effective a needs assessment of both the trainees and the organization should be done. The two sets of needs have then to be collated so that common goals are outlined and shared. The training facilities, the methodologies used as well as the presenters must be "packaged" to offer an exciting learning experience. The training should be empowering and make an employee feel a difference in performance pre and post training.

Management should constantly get feedback from staff on their attitudes towards training sessions and respond accordingly. Trainers and management should note the point made by Saedon et al. (2012)

that multi source feedback can lead to trainee motivation and confidence and overall performance improvement. In addition this study emphasises the point made by Saedon et al. (2012) that management, trainers and trainees should learn that negative feedback should be taken as constructive criticism for the employee to improve. Training experts should also be consulted in this endeavor. Without appropriate and regular assessment, no limitations would be identified and corrections and improvements will likely not be instituted.

The success of on the job training depends to a large extent on its strategic purpose. As pointed out by Neirotti and Paolucci (2013) training is a strategic process which accompanies a bundle of complementary HRM practices that can change products, processes and organizational configurations. This promotes innovation within the organization. The professional development of workers should put them in a position where they make choices and be able to act on them (Lambert et al., 2012). In addition, occupational projects should match not only the needs of the organization but personal needs at work and elsewhere. We recommend therefore a culture of openness to new ideas, open communication and shared problem-solving if workplace learning is to be successful. Management should always bear in mind that skilled and knowledgeable employees are a critical competitive tool in today's turbulent world. Measuring effectiveness becomes critical in mapping the chosen direction of a company. As stated by Neirotti and Paolucci (2013) training should be continuous and comprehensive.

Training program objectives must be clearly understood prior to starting and should be validated with the organizational goals to be accomplished. Once validated, the purest measure of training effectiveness is simply a test of whether participants actually, display different behavioral patterns as a result of attending training. If they do not, it cannot be said the training was effective (Khalid et al., 2011). The need for feedback can-not be over emphasised and so is the actual assessment of a training program.

For an effective training program to take place a comprehensive system of design, delivery, transfer, and evaluation should be in place and be

continuously evaluated. As pointed out by Salas et al. (2012) the science of training clearly shows that there is a right way and a wrong way to design, deliver, and implement a training program. In addition, in order to enhance effectiveness of training, trainees should expect post training assessments and feedback on application should be a continuous practice.

Conclusion

The aim of the study was to measure the effectiveness of on the job training at a health care company. The staff who underwent the training felt that it was effective in all the four measures that were undertaken. The study also found out that gender and an employee's job function did not affect the perception of the effectiveness of the training. On the job training is carried out to achieve critical individual as well as organizational strategic objectives. An effective training is beneficial to both the individual and the organization.

The limitation of this study was that the research was done at a single center of a company with multiple operational centers. A small convenient sample was used in the study. Experiences may differ according to who offers the training (trainers) and how the training is conducted at other locations. Having a bigger sample or respondents from different locations could have improved the scope of the study and therefore the validity of the results.

A mixed research approach to this study could have yielded better results through the incorporation of the trainees' (qualitative) recommendations to improve effectiveness. The study was carried out in one company in a single industry. Results may not therefore reflect the true position of other companies operating in the health sector, other different sectors or in different locations in the world. Extending the study to other industries may also be helpful since a lot of resources are ploughed into training but the effectiveness of such investment is not always measured as literature shows.

The study was limited to the perceptions of the employees with regards to the effectiveness of the training offered. Actual effectiveness could be measured in future research. Besides the gender and job functions variables studied, education may also be considered for future research.

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