RESEARCH ARTICLE

Effectiveness of E-Learning in the Indian IT Industry

Alhan Aziz Khan

Doctor

Symbiosis Centre for Management and Human Resource Development, Symbiosis International (Deemed University)

Pune, Maharashtra, India

Email Id: alhan_aziz@siu.edu.in, ORCID: 0000-0002-2781-6398

Vinita Sinha

Doctor

Symbiosis Centre for Management and Human Resource Development, Symbiosis International (Deemed University)

Pune, Maharashtra, India

Email Id: vinita_sinha@scmhrd.edu, ORCID: 0000-0002-4195-2257

Doi Serial https://doi.org/10.56334/sei/8.5.74

Keywords Effectiveness, Evaluation, Industry, E-learning, Kirkpatrick model, IT.

Abstract

Purpose: To evaluate the effectiveness of e-learning programs in Indian IT companies. Proposed Design/Methodology/Approach: The empirical data for the study is collected through a well-structured 17-item questionnaire. It was constructed to analyze the perception of employees towards e-learning. The data was gathered through an online survey, prepared through google forms. Finally, descriptive methods were incorporated to analyze the data. Target Population: Employees of various Indian IT companies. Sample size: 106Practical / Theoretical Implication: The study will help the management analyze employees' perception of online training and identify potential areas of improvement in enhancing the efficacy of e-learning programs. Our research also lists down some of the principles which can be implemented to improve the effectiveness of online learning.

Originality/Value: Most research related to the evaluation of training programs focuses on assessing the trainees' reaction and learning from the program. This study tries to incorporate the transfer of learning to the job as an additional element in the evaluation process.

Citation

Alhan A.K., Vinita S. (2025). Effectiveness of E-Learning in the Indian IT Industry. *Science, Education and Innovations in the Context of Modern Problems*, 8(5), 723-731; doi:10.56352/sei/8.5.74. https://imcra-az.org/archive/363-science-education-and-innovations-in-the-context-of-modern-problems-issue-5-volviii-2025.html

Received: 10.12.2024 | Accepted: 28.04.2025 | Published: 17.05.2025 (available online)

Introduction

The success of any organization is largely dependent on how its employees perform. A study by [1] suggested that improved workforce capabilities, knowledge, and skills are a significant source of competitive advantage in global markets. Hence, it can be derived from the same that employees must continue to learn and grow along with the organization.

Training and development often referred to like learning and development, aims to enhance the efficiency and performance of employees by improving their knowledge and skill set [2]. Organizations play a significant role in

aligning the individual's goals and performance to the organization's overall business strategy. They need to identify the training needs and subsequently overcome these with practical training methods [3].
An effective training process will provide individuals with the essential skills and the ability to apply these skills in their organization. Training helps in building employees' competencies, reduces the need to supervise and overlook them constantly, and improves job satisfaction. It also helps them overcome deficiencies in any work area and be ready to hold future positions in any company [4].
Training programs comprise three steps: first, to evaluate the training needs; second, impart the training through various mediums (lectures, group discussions, role plays, etc.), and third is to measure the program's efficacy.
Evaluating the effectiveness of training can help managers identify potential areas of improvement and provide direction on ways to improve them. Despite this fact, a study by the American Society of Training and Development (ASTD) revealed that 67% of the learning and development professionals do not assess the efficacy of their net-based programs at all [5].
Advancement in technology implies adopting e-learning to provide learning and development opportunities to their employees by organizations. It allows several advantages over traditional training methods such as learner's convenience, standardized delivery, and cost-effectiveness [6].

In the current study, the focus will be given to evaluating the effectiveness of e-learning programs in the Indian Information Technology (IT) industry. The analysis becomes necessary as many organizations strive to gain a competitive advantage by enhancing their employees' knowledge, skills, and capabilities. As Moore noted in his study that for any distance learning program, a good monitoring and evaluation system is likely to lead to the success of a program, and a flawed system will certainly lead to failure. So, an effective evaluation technique will help organizations determine whether the e-learning program is a viable and effective training strategy. The study will help the management identify areas of improvement in the training programs and make sure that they are in line with the organization's training needs.

1.1. Related Work

Training is a costly investment. Consequently, research and development are required to evaluate its effectiveness and further optimize it [7]. However, Phillips (1991) discovered that most Human Resource Development specialists are reluctant to evaluate the effectiveness of training programs conducted.
A detailed training program evaluation helps to ensure that training meets the organizational goals [8]. It can also be used to gather information to make decisions regarding future training programs [9]. Suggested using the results of the evaluation to redesign the training programs in order to make them more aligned to the organizational goals [10].
It is suggested that online training is the most effective off-the-job training methodologies. [11] Claimed that e-learning programs could help achieve greater efficiency with fewer resources. Another trend that emerged from this study shows that most companies consider e-training positively owing to its various advantages like convenience and cost-effectiveness.
Implied that online interactions can improve the effectiveness of courses delivered in companies. Similarly, Mittal (2008) suggested that e-learning programs need to be customized to incorporate individualistic needs and make them more effective [12]. In another study, it was implied that for e-learning, the focus needs to be given to the humane factors than the technology itself.
In this study, we would be using Kirkpatrick's model to evaluate the effectiveness of e-learning programs used in Indian IT companies. According to Phillips, the Kirkpatrick Model is probably the best framework for categorizing the areas of evaluation. Kirkpatrick (1998) regarded training evaluation to be comprised of four levels – reaction or the degree of satisfaction learners get from the program; learning, or change in the attitudes, knowledge, and skills of the trainees as a result of the program; behavior, which refers to the changes in job behavior as a consequence of the training; results, which assesses the training in terms of organizational results like cost reduction and quality improvements.
Most research related to the evaluation of training programs has its focus on measuring trainees' reactions and learning from the program. The reaction is measured as the attitude of the trainee toward the content, way of teaching, and quality of trainers, whereas the learning is measured by analyzing the change in knowledge, skills, and attitudes of the trainees. However, the transfer of learning to the job and measuring performance changes on the job is also important and must be considered in the evaluation process.
Mentioned five dimensions that impact the efficacy of any computer-based training program - the trainee, content, communication between trainer and trainee, ease of use of online resources, and the organizational environment [13].
The trainee must be motivated to learn in order to improve his performance. In a study conducted, it was found that higher motivation was directly related to improvement in job performance. Computer self-efficacy is also an important characteristic of a trainee for e-learning programs. The content of the training program is also significant for effective learning. It suggested evaluating the work-relatedness of a training program by analyzing its contents. [14] Found through

his study that the higher the frequency of interactions and communication between the trainer and the trainee, the higher is the effectiveness of the training program. Also, when a training program is designed, its ease of use can also be considered as an important factor. The technology acceptance model introduced by Davis theorized that ease of use determines the usage behavior of the learners. Lastly, a continuous learning environment is also an important factor for effective learning.

This basically means there must be a culture to learn from each other and grow within the organization. [15] Found that supervisor's support directly affects the learning performance of trainees. These dimensions will be explored while preparing the questionnaires for the current research [16].
Hypothesis – Through our secondary research, we have found that with the higher motivation of the learners for online training, greater work-relatedness of the training content, and higher number of interactions with the trainer, greater learning effectiveness is achieved. Also, easier is the usage of the online training program; greater is the learning performance of the trainees. We form the hypothesis as below:
H1: Motivation, training content, interaction with trainers, and ease of use are correlated with each other and enhance the learning effectiveness of the individuals.

1.2. Theoretical Background

The Kirkpatrick model has four levels of evaluation, the first one being the learner's reaction. In order to measure at this level, learners are asked to respond to a questionnaire after the training program ends. This allows the program participants to assess various aspects, such as the quality of content and the trainer's effectiveness. In practice, organizations often rely on this level for evaluating their training programs and simply ignore the other three levels. The advantage of this level is that it gives information to the training and development professionals to understand whether the program is gaining traction by the participants. It presents the learners' perception about the program and allows the management to make necessary changes to make it more effective. This level cannot be exclusively relied upon to get the best measure of the training. Also, it does not represent whether the participants have learned as per the objectives of the program. Davis emphasized the intuitive essence of this level of evaluation, while Aldrich said that assessments that are dependent solely on this level of evaluation are not much of use. Aldrich further suggested that evaluations at this level might lead to organizations unnecessarily making changes to the program in response to the feedback from the participants. However, the responses can be biased based on various factors, like the learner's lack of interest in that training program. To avoid such a situation, the remaining levels in the Kirkpatrick model must be considered for a more precise assessment of the program.
The second level of the Kirkpatrick model is learning, which measures whether or not the training program has led to the enhancement of skills and knowledge of the participants. A number of techniques can be used to evaluate at this level. For example, the learners can be asked about their program expectations and then inquire whether those expectations were met. But just like the first level of the Kirkpatrick model, this level has the limitation of subjectivity. The responses may not show a true picture of the learning's as they may be grounded based on how the participants feel after the training program or on the effectiveness of the trainer. Another method for evaluating at this level is to assess the learners on the content of the training program. Still, evaluating at level two may not represent whether any transfer of learning or skills has happened. For instance, a participant who showcased having understood the concept may not be able to do so in real-life scenarios. Such considerations are called barriers to transfer and can reduce the accuracy of the evaluation process at this level. As per the study of Ford and Weinstein, about 10 to 30 percent of what is taught in a training program is transferred to the participants as knowledge and skills. The Kirkpatrick model must consider the barrier to transfer of learning in the evaluation of the training program. The issue with level two evaluations is that it mostly relies on information given by the learners and trainers. This may hamper the precision of the evaluation process as self-assessment is often not the best method to understand the change in behavior of the participant who has undergone a training program. For higher accuracy, data sources should be free of bias, and their information should be easily understood.
The third level of the Kirkpatrick model assesses the behavior and how the learning's translated into practice post the training program. As per the study conducted by Phillips, evaluation at this level determines the success in overcoming the organization's objectives, identifies which participants were the most successful, and reinforces major points to the learners. Phillips had stressed the importance of measuring change on the job as a consequence of the training program. However, often the supervisor is asked to evaluate at this level which affects the accuracy of the measurement. In most cases, supervisors do not have the expertise or time to measure change effectively.
Their views may also be biased due to the emotional link with certain people or situations under evaluation. Level three evaluations may not be required to be performed at a specific location or in person. With the advent of technology, various aspects of job performance can be assessed online. However, it should be taken care that such evaluations do not occur after a long time post the rest of the evaluation process. As the performance tests based on the computer can

measure procedural knowledge, computer-based assessment can showcase that an individual can use their new skill set to carry out tasks.

The advantage of this model level is that it helps to remove much of the potential bias discussed in the previous two levels. Evaluation at this level can be more pertinent to assessing current online training programs than when computers were less available for this purpose. Computer-based assessments provide a more precise way of gauging the learner's understanding of the training content. For e-learning programs, it is possible to analyze whether or not the assessments were properly done, whether the learnings were well understood and whether they were taken in a time-bound manner. They were evaluated at this level through computers. It is quite a way forward in e-learning, as it provides facts like test scores and tangible results, including performance insights. Computer-based assessments allow the evaluators to check whether the participant completed the steps properly and view the outcome. Therefore, evaluating at this level can surely help in measuring the learning gained by the participants.

The fourth level of the Kirkpatrick model is results representing evidence that can be associated with improved productivity, reduced cost, increased sales, etc. Such information can be utilized to back training expenses. This level is considered the most important. It tries to evaluate the training program in terms of business results such as the increase in revenue that the managers and supervisors can more easily comprehend. However, from the organization's point of view, it is quite difficult to obtain such data.

Research Methodology

A 17-item questionnaire was developed for data collection. In this, the respondents were asked questions that were relevant to the factors under study. The questionnaire was constructed to analyze the perception of the employees towards online training. The questionnaire was segregated into two parts, the first comprising three questions for capturing the respondent's profile (Name, Gender, and Age group). The next set of questions sought to gauge the attitudes of the learners towards e-learning. The questions were rated on a 5-point Likert scale (5 - Strongly disagree, 4 - Partially disagree, 3 - Neutral, 2 - Partially agree, 1 - Strongly agree), which best described the extent to which the participants agreed with each variable.

The data was collected with the help of a survey, designed through google forms, and was distributed to the employees of various Indian IT organizations. The sample size taken for the study was 106. The respondent group had a fairly similar number of males and females. (nM = 56 (52.8%); nF = 50 (47.2%)). The participant group was relatively young, with about half of the sample lying in the age group of fewer than 25 years. The rest was closely distributed in the range of 26-35 years, 36-45 years, and greater than 45 years. (n<25 = 46 (43.4%); n26-35 =23 (21.7%); n36-45 = 21 (19.8%); n>45 = 16 (15.1%)).

Results and Analysis

The analysis was carried out through IBM SPSS Version 23. Firstly, reliability was evaluated using Cronbach's alpha. The following Table 1 shows the reliability test.

1.3. Reliability Statistics

Table 1. Reliability Statistics.

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.892	893	14

The 17-item instrument had reliability of 0.893, which was higher than the threshold criteria of 0.8. Thus, the data was reliable enough to proceed with further research. Post the reliability test, descriptive analysis was performed, which provided the mean and standard deviation of the different variables.

The descriptive statistics presented in the table below captures the learners' perception at the three levels of Kirkpatrick's model – Reaction, Learning, and Behavior. It was seen that the mean (over 5) for each item was in the range of 3 to 4. So, there was a definite scope for enhancing the effectiveness of e-learning programs. The following Table 2 shows the Descriptive Statistics.

3.2. Descriptive Statistics

Table 2: Descriptive Statistics.

Items	Mean	Std. Deviation
The speed of response of the online training system in your organization is acceptable	3.98	1.077
The online training delivers information that is pertinent to your work	3.89	.994
The online training delivers information that is up to dated	3.67	1.139
The online training system provides guidance and counseling	3.65	.991
The user interface is appealing and easy to navigate through	3.58	.981
The e-learning system helps you in problem-solving	3.54	1.151
Trainers guide me in applying online training to my work	3.09	1.184
I learn new techniques/methods through e-learning programs	3.88	.908
I think e-learning helps to improve my task ability	3.74	1.009
I feel confident about utilizing online learning's in my work	3.98	.991
The online training is helping me to improve my task achievement	3.77	.907
I use the knowledge gained from the training in my everyday task	3.51	1.020
The online training has enabled me to identify new ways of doing a task	3.60	1.163
The online learning system is user-friendly	3.56	1.102

A factor analysis was then administered to further examine the factor structure. This analysis was performed to cluster the variables into the broad groups on which our hypothesis is dependent.
The KMO test of sampling adequacy was 0.830, which exceeded the minimum standard of 0.500, suggesting that the sample size was sufficient for analysis. Bartlett's Test of Sphericity was significant at the 0.000 level, which showcased that the data was suitable for factor analysis. Table 3 shows theKMO and Bartlett's Test report.

3.3. KMO and Bartlett's Test

Table 3. KMO And Bartlett's Test.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.830
Bartlett's Test of Sphericity	Approx. Chi-Square	386.243
	df	91
	Sig.	.000

3.4. Total Variance Explained

Table 4: Total Variance.

Component		Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
		Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
dimension0	1	5.891	42.077	42.077	5.891	42.077	42.077	3.128	22.342	22.342
	2	1.258	8.983	51.060	1.258	8.983	51.060	2.785	19.893	42.236
	3	1.175	8.395	59.455	1.175	8.395	59.455	1.881	13.437	55.673
	4	1.105	7.890	67.345	1.105	7.890	67.345	1.634	11.672	67.345
	5	.842	6.012	73.357						
	6	.726	5.186	78.542						
	7	.599	4.279	82.822						

	8	.561	4.005	86.826						
	9	.413	2.948	89.775						
	10	.386	2.754	92.529						
	11	.369	2.633	95.162						
	12	.266	1.901	97.063						
	13	.226	1.611	98.675						
	14	.186	1.325	100.000						

Table 4 shows the Total Variance data.
Extraction Method: Principal Component Analysis.

The factor analysis provided the dimension reduction of the variables and segregated them into bigger groups to see the correlation between them. The sample of 106 responses was analyzed using principal components factor analysis as the extraction technique and varimax as the orthogonal rotation method. As seen in the Table 5, the analysis had produced four factors.

3.5. Component Transformation Matrix

Table 5. Component transformation matrix.

Component	1	2	3	4
1	.944	.589	.583	.321
dimension02	.589	.952	.709	.681
3	.583	.709	.967	.712
4	.321	.681	.712	.921

3.6. Rotated Component Matrix
3.7.

Table 6. Rotated component matrix.

	Component			
	1	2	3	4
The speed of response of the online training system in your organization is acceptable (v1)	.133	.225	.216	.704
The online training system delivers information that is pertinent to your work (v2)	.454	.623	.147	.232
The online training delivers information that is up to date (v3)	.089	.799	.247	-.173
The e-learning system provides online guidance and counseling (v4)	.212	.062	.756	.254
The user interface is appealing and easy to navigate through (v5)	.183	.140	-.084	840
The e-learning system helps you in problem-solving (v6)	.665	.274	.052	.013
Trainers guide me in applying the online training to my work (v7)	.117	-.007	.703	.310
I learn new techniques/methods through e-learning program (v8)	.031	.520	.320	.335
I think e-learning helps to improve my task ability (v9)	.625	.406	.302	.155
I feel confident about utilizing the online learnings to my work (v10)	.684	.210	.144	.384
The online training is helping me to improve my task achievement(v11)	.554	.168	.135	.233

I use the knowledge gained from the training in my everyday task (v12)	.472	.667	-.068	.110
The online training has enabled me to identify new ways of doing a task (v13)	.779	.211	.235	-.036
The e-learning system is user friendly (v14)	.092	.125	.107	.886

Table 6 shows the Component Transformation Matrix
The 14 items have been clustered into four broad groups shown below: -

1. Motivation (v6, v9, v10, v11, v13)
2. Training content (v2, v3, v8, v12)
3. Interaction with trainers (v4, v7)
4. Ease of use (v1, v5, v14)

Here, v represents the variables in the rotated component matrix.

Now, from the component transformation matrix, the relation between the four factors was analyzed. The matrix shows that motivation has a correlation of 0.589 with training content, ease of use has a correlation of 0.681 with training content, motivation has a correlation of 0.583 with interaction with trainers, and ease of use has a correlation of 0.712 with interaction with trainers. This proves the stated hypothesis.

Definition of factor variables

3.5.1. Factor 1 has been named motivation as it incorporates the items that determine the learners' aspiration levels to undergo training through e-learning programs. Factor 2 is about the training content which relates to the learning materials. Factor 3 is interaction with trainers, which captures the level of communication between the trainers and trainees. Factor 4 represents ease of use which is relevant to the aspect of user-friendliness of the e-learning systems.

3.5.2. Motivation

The learners desire to gain knowledge from e-learning programs. The items were taken from the survey conducted by [2]. Participants were asked to rate their level of agreement on a 5-point Likert scale on statements like "The e-learning system helps you in problem-solving" and "I feel confident about utilizing the online learning's to my work."

3.5.3. Training Content

This refers to the learning materials. The participants of this study were asked questions on their enhancement of skills and job performance. Items were taken from a study conducted by [3], and the respondents rated statements like "The online training system delivers information that is pertinent to your work" and "I learn new techniques/methods through an e-learning program."

Interaction

This measure the level of communication between the trainers and the trainees. Some of the questions for capturing responses at this level were based on the study conducted by [4]. Statements like "The e-learning system provides online guidance and counseling" and "Trainers guide me in applying the online training to my work" were asked to be rated by the participants based on their level of agreement.

Ease of use represents the ease with which the learners can access the online training content and use it. Few items were taken from the questionnaire prepared by [6] to evaluate according to this factor. Respondents were asked to rate statements like "The user interface is appealing and easy to navigate through" and "The speed of response of the online training system in your organization is acceptable."

Discussions

Through our research, we have captured the perception of employees in the Indian IT industry towards e-learning. We see that the mean for each item is in the range of 3 to 4. So, there is room for enhancing the effectiveness of e-learning programs to improve the attitudes and perceptions of the learners towards it.

Let us now discuss some principles that may enhance the effectiveness of e-learning. We would focus on the e-learning principles as suggested. These have a broader scope covering various areas of developing e-learning programs and are highly applicable and validated through research.

The multimedia principle says that graphics must be used along with texts. It was found in a study that the students given visual illustrations along with text-based content performed quite better in tests compared to those who had only received textual content. When the texts are complemented with relevant graphics, learners can become more immersive with the content. It helps in the more active information processing, as they have to visualize the relationship between the textual content and the graphical illustrations. This was theorized by Mayer and his colleagues, who proposed the use of graphics and texts to explain concepts.

According to the contiguity principle, whenever text-based content is used to complement a graphic or vice versa, they

should be kept near one another. This was theorized in a study, where it was found that when text and graphics were placed next to each other, it led to better performance by the students on problem-solving tests, rather than when the text was placed beneath the visual illustration. This principle basically allows the learners to focus on the content rather than trying to understand the link between the text and the various visual illustrations. Although it seems to be obvious, it is sometimes neglected while designing e-learning content. This principle is most often violated when text and graphics get separated while scrolling or when the textual content and the visual illustrations are connected through web links. This principle is supported by the studies conducted.

The modality principle states that audio can be used to showcase information along with the text. It was found in a study that the students who were subjected to animation combined with narration had a better performance in solving problems compared to the students who were provided with animation combined with text. The logic behind this is that individuals may get overwhelmed with the information presented visually through texts, graphs, or figures. The cognitive theory states that there are two separate channels for human visual and auditory processing. Hence, learners are likely to imbibe greater information when the material is given both in text and audio. This, however, does not mean that there should be an audio version of the text presented on screen as it would only be an addition to the cognitive workload of the participant. The audio should rather replace some of the text on the screen, enabling learners to interact both visually and through audio as well. The basis for this principle comes from the various studies.

The last principle we will discuss is the personalization principle. It states that the text should be written in the first and second person and that the participants be allowed to interact with virtual learning coaches. In a study, it was found that learners who had received text in first and second person had performed quite better than those who had received formal text. This would help participants to look up to their computers as conversational partners rather than a knowledge delivery system. The learners would then be more likely to put in the necessary effort towards understanding the content provided to them. The basis for this principle comes from the various studies.

Recommendations

We know that the Kirkpatrick model provides a framework for evaluating the effectiveness of training programs at four levels. However, suggested the addition of a fifth level to measure the return on investment (ROI) for the programs.

While some training and development executives argue that it is impossible to measure ROI for training, there is a consensus that trainers must calculate ROI so as to back the credibility of the training programs. This would also help in convincing the organization to continue funding the training programs so as to increase the productivity of the firm. Evaluation at this level is assessed through the monetary value of the organizational results and compared to the cost of training.

This basically represents a cost-benefit model, in which the financial gains of the training programs are compared with the expenses to analyze whether the training costs were on the higher side or not. Thus, Phillips' fifth level of evaluation showcases hard evidence of the success level of the training programs and makes it available to the evaluators and companies funding such programs. Hence, we can implement this modified system of Kirkpatrick evaluation, which evaluates the training outcomes with subjective and objective data. To develop a reliable ROI model for e-learning, a number of direct and indirect costs must be considered. These include the cost related to development, delivery, and maintenance. Examples of direct costs are compensation of the trainers and vendors along with costs related to development, production, IT, etc. Indirect costs may comprise the replication of materials, procurement of network servers, etc. A hybrid of the Kirkpatrick and ROI model may be the best-suited method for evaluating learning because it would provide information about an individual's learning and application of new skills, along with data about the return on the company's investment in training. Such a model has the potential to make the management realize the significance of e-learning in increasing the productivity of the company. If this kind of recognition is gained, managers would be more likely to merit the contribution of e-learning to the organizational objectives. In this way, the Kirkpatrick and ROI model is reinforced by hybridizing their approaches, making it more applicable and responsive to evaluating e-learning programs. Thus, further research can be done to study the validity of such a hybrid model.

Conclusion

The purpose of the study was to evaluate the effectiveness of e-learning programs in the Indian IT Industry. A 14-item questionnaire was created keeping in mind various factors like motivation, training content, interaction with the trainer, and ease of use. The variables were related to the first three levels of the Kirkpatrick model – Reaction, Learning, and Behavior. It is seen in our research that the perceived effectiveness of e-learning programs was satisfactory for most of the participants. The majority also claimed that they were able to apply the newly gained knowledge in their everyday task. However, there is a definite scope for enhancement in the effectiveness of e-learning programs, keeping in mind the mean for most of the items was in the range of 3 to 4. A high correlation is found between the four factors – motivation, training content, interaction, and ease of use. We have also discussed some of the principles which can be used to enhance the efficacy of online training programs. E-learning can definitely be seen as an effective training

method as it gives the flexibility of accessing content anytime and anywhere. It adds to the learner's convenience, reduces the cost of delivery, and personalizes the training experience. Although e-learning has been adopted by Indian IT companies in recent times, the effectiveness of such programs is yet to be completely explored. Further research is needed to enhance the design, delivery, and implementation of e-learning programs.

References

1. Aldrich, C., 2002. Measuring success: In a post-Maslow/Kirkpatrick world, which metrics matter. *Online Learning*, **6**(2), pp.30-32.
2. Beck, I.L., McKeown, M.G., Sandora, C., Kucan, L. and Worthy, J., 1996. Questioning the author: A yearlong classroom implementation to engage students with text. *The Elementary School Journal*, **96**(4), pp.385-414.
3. Galloway, D.L., 2005. Evaluating distance delivery and e-learning is kirkpatrick's model relevant?. *Performance Improvement*, **44**(4), pp.21-27.
4. Galloway, D.L., 2005. Evaluating distance delivery and e-learning is kirkpatrick's model relevant?. *Performance Improvement*, **44**(4), pp.21-27.
5. Chou, H.W. and Wang, T.B., 2000. The influence of learning style and training method on self-efficacy and learning performance in WWW homepage design training. *International journal of information management*, **20**(6), pp.455-472.
6. Barron, A.E. and Calandra, B.D., 2003. Audio in Multimedia Learning: Principle and Practice. *2003 Annual Proceedings-Anaheim: Volume# 2*, p.34.
7. Denisova, M., 2017. Improving Safety through Developing Training Programmes in Safe Working Practices.
8. Davis, J.R. and Davis, A.B., 1998. *Effective training strategies: A comprehensive guide to maximizing learning in organizations*. Berrett-Koehler Pub.
9. Davis, F.D., 1989. Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS quarterly*, pp.319-340.
10. Elnaga, A. and Imran, A., 2013. The effect of training on employee performance. *European journal of Business and Management*, **5**(4), pp.137-147.
11. Falola, H.O., Osibanjo, A.O. and Ojo, S.I., 2014. EFFECTIVENESS OF TRAINING AND DEVELOPMENT ON EMPLOYEES'PERFORMANCE AND ORGANISATION COMPETITIVENESS IN THE NIGERIAN BANKING INDUSTRY. *Bulletin of the Transilvania University of Brasov. Economic Sciences. Series V*, **7**(1), p.161.
12. Farjad, S., 2012. The Evaluation Effectiveness of training courses in University by Kirkpatrick Model (case study: Islamshahr university). *Procedia-Social and Behavioral Sciences*, **46**, pp.2837-2841.
13. Ford, J.K. and Weissbein, D.A., 1997. Transfer of training: An updated review and analysis. *Performance improvement quarterly*, **10**(2), pp.22-41.
14. Ford, J.K. and Wroten, S.P., 1984. Introducing new methods for conducting training evaluation and for linking training evaluation to program redesign. *Personnel Psychology*, **37**(4), pp.651-665.
15. D. A. Groveland C.Ostroff, 1991. "Program evaluation. In K. N. Wexley (Ed.)", Developing human resources. BNA Books.
16. Aldossary, F., 2017. Health observation system using cloud computing. *International Journal of MC Square Scientific Research*, **9**(4), pp.08-16.