

Use of IoT in Training Need Analysis

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Abstract

In today's neck throat competitive scenarios skilled and committed employees are the real assets of any organizations. There is an imperative for organizations to provide continuous learning platforms for employees. Training and development department should know the precise training needs of the workforce. With the authentic data about the training needs, appropriate training designs can be developed and implemented to get proper results. Internet of Things (IoT) allows users to get deep automation, analysis and integration within the different systems. It improves the reach and accuracy of the systems. IoT utilizes advanced software for bringing major changes in the life of different stakeholders like employees, customers and society at large. Objectives of the study is to find out usefulness of IoT devices for the process of training need analysis and to suggest majors for effectively conducting the process of training need analysis. This research is of exploratory type and based on secondary data analysis. Researchers concluded that gap analysis can be done by measuring the gap in terms of employee's knowledge, skill and attitude with help of IoT tools. IoT can help training and development department in case of prioritizing the training needs of an employees by considering the requirements of organization. Action plan contains which training needs of which employees will be addressed in first phase, second phase and in third phase with the help of inputs collected and analyzed from IoT devices.

KEYWORDS: Training Need Analysis, Internet of Things(IoT), Training Design, Machine Sensor, Organizational efficiency.

1. Introduction :

Organizations are facing challenge of complexities in the processes which are designed for quality output. Experts in the organization are trying their level best to simplify these processes. The reason for the same is that the workforce which is going to implement these processes should not face any problem. If these work forces are going face the problems which will not be resolved in a stipulated time, it will affect the end product i.e. quality output.

Workforce with proper knowledge and skill sets are that's why become vital organ of the organization. Constantly changing processes because of frequently changing demands of the stake holders are redefining the existing roles constantly which are performed by workforce. This type of changes are not only affecting the performance of an employee but also seriously heating the mental health of that employee.

Employees are feeling drained, exhausted because of these frequent changes in their job roles.

The only solution to solve the problem of complexities in processes and frequently changing job roles is continuous learning offered to employees by considering the expected output. To provide continuous learning for employees, training and development department should know the training needs of the workforce. With the authentic data about the training needs appropriate training designs can be developed and implemented to get proper results.

The above discussion proves following points.

- a. There is need to provide continuous training opportunities for workforce.
- b. Authentic collection of data related to training needs of workforce should be done on regular basis.

Training need assessment is process of assessing and identifying the gap between expected competencies required for a role and existing competencies which is present in current role holder. This comparison of competencies will give an information about the competencies in which the job holder is lacking.

This is the base on which entire training design is going to be get developed. It is an important aspect of entire training process. Training need analysis process contains following aspects

- a) Identification of knowledge requirement in a job.
- b) Identification of skill requirement in a job, and
- c) Identification attitude requirement in a job.

This is also called as KSA required in a role.

In next level of training need analysis following aspects are covered.

- a) Identification of existing knowledge of job holder.
- b) Identification of existing skills of job holder.
- c) Identification of existing attitude of job holder.

When training and development is going to carry out above mentioned two sub processes (aspects) the output will be

- a) Deficiency in knowledge.
- b) Deficiency in skills
- c) Deficiency in attitude.

This above mentioned process of training need analysis will be carried out in the following scenarios

- a) Introduction of new equipments.
- b) Designing of new processes.
- c) Change in responsibilities.
- d) Change in job roles.
- e) Getting acquaint with new technologies.
- f) Increase in number of accidents.

- g) Decrease in workforce productivity.
- h) Decrease in quality output.

The above discussion clearly underlines the fact that training need analysis will be done effectively when the data related to knowledge, skill and attitude of job and job holder will be collected with sincerity and dedication.

2. IOT (Internet of Things) :

Internet of Things (IOT) allow users to get deep automation, analysis and integration within the different systems. It improves the reach and accuracy of the systems. IOT utilizes technology for following purposes

- a) Sensing
- b) Networking
- c) Robotics

IOT utilizes advanced software, positive attitude towards using technology for bringing major change in the life of different stakeholders like employees, customers and society at large.

The most important features of IOT includes following points

a. Artificial Intelligence :

IOT makes anything “smart” by enhancing every dimension of the life. It does the same by the power of data collection, strong networks and artificial intelligence algorithms. This can mean something as simple as enhancing the capacity of the machine by detecting the parts of the machine which will break down in future time. This will allow the machinist to take appropriate action and replacement of the parts during resting time.

b. Connectivity :

IOT is basically depend upon networks which can connect even a smaller object with a giant system with cheaper scale. IOT also creates small networks between its system devices. This will help the supervisor to identify which machines are providing output as per expectations and which are not. Supervisors can further investigate matters with the help of IOT to trace that whether problem is because of machine or the handler of the machine.

c. Sensors :

Without sensors IOT will lose its distinction. Sensors are defining instruments which transforms IOT as a passive network of devices to active system which are having the numerous capability of real world integration. Sensors will help to connect different components of system, subsystem and Microsystems.

d. Active Engagement :

Interaction with different connected technologies in today’s world are done through passive engagement. IOT brought a new paradigm shift in active content product engagement, product development and service management. This proves that IOT will help to bring cohesiveness in different factors in different systems.

e. Small devices :

Now a day's IOT devices are become smaller in size as well as more powerful in nature. These devices deliver high precision, scalability and versatility.

2.Literature review :

Cleber M. de Moraes, Djamel Sadok¹ and Judith Kelner (2019) in their research work discussed about emergence of IOT and IOT related equipments. They were of the opinion that IOT scenario gives a promising universe for the data analysis activity. IOT provides authentic data which after analysis can be used for decision making. Low cost sensors and edge nodes can be effectively used for collection of data.

Arup Barman and Karan Das (2018) explained that by taking the help of sensitive digital electronic network build object things can be monitored, majored. This data can be used to identify the gap between expected performance and actual performance of an employee.

Wearable IOT helps to improve human employee efficiency and wellness. This will lead to optimum utilization of resources in the organization which further leads to improving organizational efficiency.

Pardis Emami-Naeini, Sruti Bhagavatula, Hana Habib, Martin Degeling, Lujo Bauer, Lorrie Faith Cranor, Norman Sadeh, (2017) registered that in organization rapid deployment of IoT technologies are taking Place. With the help of IoT technologies organizations are gathering huge data related to knowledge, skills, attitude and performance of the employees.

They stressed upon the need of judicial use of that data by maintaining transparency and by adopting ethical practices. The data collected can be used to

- a. train employees
- b. improve performance of employees
- c. improve satisfaction level of stake holders.

Evan Schirf and Anthony Serapiglia (2017) tried to find out skills gap in IT industry employees in their research work. Surprisingly the skill gaps rated above technical skills were communication, problem solving, interpersonal skills, motivation and positive attitude. These skill gaps can be identified by using IoT technologies and equipments.

Salas and Cannon (2001) in their research work explained the concept of training need analysis. They were of the opinion that output of training need analysis is

- a. what needs to be taught
- b. who needs training.

IoT technologies will help us to identify who needs training as well as what type of training they want.

Nur 'Izzah Mohamad Nor, Lawrence Arokiasamy and Rani Ann Balaraman (2018) in their research work discussed about Gen Y Employees. Gen Y Employees are more technology oriented and internet savvy. These employees needs interesting, challenging and rewarding carrier. They want to use IoT in to their day to day functioning including job roles.

IoT will be an effective solution to monitor Gen Y Employees performance and to identify gap in knowledge, skill and attitude.

Dr. Sachin Ayarekar and Dr. Pramod Pawar (2017) explained the role of technologies in training process. The researcher named training need analysis as an important sub process of entire training. Training need analysis cannot be done effectively without collection of training needs of the employees by maintaining holiness. Technologies like IoT will help to collect data related to training needs of the employees.

Objectives of the study:

- a. To study the concept of Internet of Things.
- b. To find out the usefulness of IOT devices for the process of training need analysis.
- c. To suggest the majors for effectively conducting the process of training need analysis.

Research Methodology:

This research is of exploratory type. Researchers want to explore the utilization of IOT in carrying out the process of training need analysis. This research is basically depending on secondary data source. Researchers have reviewed seventeen research papers and referred two books and reports. While doing the secondary data analysis they have considered following points

- a) Training need analysis process in organization.
- b) IOT systems – features and importance
- c) IOT systems and gap in knowledge
- d) IOT systems and gap in skills.
- e) IOT systems and gap in attitudes.

Discussion:

Training need analysis process is comprises of following steps

- a) Gap analysis
- b) Prioritizing the training needs
- c) Preparing action plan.

This chapter is basically focused upon how IoT technology and devices will help in above mentioned sub processes of training need analysis.

a. Gap analysis:

Gap analysis can be done by measuring the gap in terms of employees knowledge, skill and attitude. What type of knowledge job demands and how much knowledge the job holder is having will give the result for gap in knowledge.

What type of skills job demands and what skills job holders are possessing will give the result related to gap in skills. What type of behavior is required to perform the job and how the job holder is behaving will give the result for gap in attitude. What job demands can be collected with the help of job description and job specification documents related to that job. How much knowledge and skills the employee possesses and his attitude towards job can be observed and recorded by employees manager and training and development department executives. This data can be collected with full accuracy by using IoT devices.

For eg. sensors deployed in machines will give the information about how many times job holder performed tasks wrongly by giving alarms.

Another eg. for using ICT tool for collection of data related to training needs can be CCTV cameras. Those footages given by CCTV cameras will help to observe the behavior of the employee while the performing the job. What unnecessary behavior the employee is exhibiting and how many times he or she is exhibiting that behavior can be identified with the help of CCTV footage.

b) Prioritizing the training needs:

In case of an employee training and development department may get ten training needs. It will be a big challenge for training and development department in case of selection of training needs in which they want to address first.

IoT can help training and development department in case of prioritizing the training needs of an employees.

For eg. Information given by sensors within the machine will help to take the decision related to selection of training need. How many times in a day the sensors has given the same type of information about a particular employee as well as what are the possible damage because of the wring act performed by the employee.

This data collected through sensors will help to rank the importance of training needs. This will further help in making the list of property list for training needs.

c) Preparing action plan:

Once priority list of training needs with the help of IoT is prepared then training and development department will be in position to prepare action plan. Action plan contains which training needs of which employees will be addressed in first phase, second phase and in third phase. This action plan also clubs the common training needs of different employees means which employees we can club for training.

The advantage of the above mentioned point is to save cost and time of organization. IoT devices can help in preparation of action plan. Data received from IoT devices about employees related to their knowledge, skill and attitude will help to identify the employee having similarity in knowledge, skill and attitude with same training need. These groups will be more effective and will be very helpful for trainers to deliver training.

Use of IoT tools in Training Need Analysis.

| Sr. No | Name of sub process of Training need Analysis | Name of IoT device which can be used to collect data |
|--------|---|--|
| 1 | Gap analysis | Machine Sensors, CCTV, edge nodes, wearable electronic devices |
| 2 | Prioritizing the training needs | CCTV, edge nodes, wearable electronic devices |
| 3 | Preparing action plan | CCTV, edge nodes |

Conclusion :

Organizations are deploying IoT technologies in their organizations with a rapid speed. Employees especially generation Y loves use of technology in their personal as well as professional life. This is a win-win situation for organization and employees. Training and development activities in the organizations now a days are more technological centric for eg. Video lectures, online courses etc.

This is a high time for organizations to start use of IoT devices in the process of training specifically for the sub process of training need analysis. The soul of training need analysis is collection of accurate and valid information about employees in terms of their job performance (knowledge, skill and attitude).

IoT devices like machine sensors, edge nodes, CCTV footage, wearable electronic devices can be used for identifying the gap in terms of knowledge, skills and attitude of job holder. It significantly helps in prioritizing the training needs as well as in preparation of action plan.

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