UNIT 2 TRAINING NEEDS ASSESSMENT METHODS

Structure

2.1 INTRODUCTION

Dear Learner,

Training needs assessment helps to define a target group's learning needs and validate what training may be required for the planned developmental activities. With this idea in mind we discussed in the previous unit the concept of training needs assessment, scope and matrix of training needs assessment, four approaches in training need analysis viz., performance analysis, task analysis, competency study and training needs survey, rational and empirical methods of data collection and information and skills needed in training need analysis.

In this unit, task analysis and competency mapping methods of training needs assessment are discussed with examples for your understanding.

After studying this unit you should be able to

- Explain the meaning of task analysis and competency mapping.
- Identify training needs through task analysis and competency mapping approaches.

2.2 TASK ANALYSIS

Task analysis is a systematic analysis of jobs to identify job contents, knowledge, skills and aptitudes required to perform the job. It is an effective and widely used approach for determining training needs in which training needs are linked to task performance.

Task Analysis

A task analysis can help us to:

- Determine the learning goals and objectives;
- Define and describe in detail the tasks and sub-tasks that the employee will perform;
- Specify the knowledge type (declarative, structural, and procedural knowledge) that characterise a job or task;
- Select learning outcomes that are appropriate for training;
- Prioritise and sequence tasks;
- Determine learning activities and strategies that foster the required development;
- Select appropriate media and learning environments;
- Construct performance assessments and evaluation

(Source: Jonassen et al., 1999).

Identification of training needs through task analysis approach consists of the following phases:

i) Task Identification

ii) Task Analysis

iii) Gap Analysis

2.2.1 Task Identification

Task identification or job analysis refers to dividing a major work event into its component parts, which allows a trainer to understand what an individual does in the course of his / her work. Associated activities required to be accomplished for task identification are narrated below.

i) Assumptions in Task Identification

a) A problem is nothing but a gap between desired performance and actual performance.

b) Not all discrepancies between desired and actual behaviour are remedied by designing and delivering a training programme. For example, the problem could be due to poor organizational policies or environment.

c) The need identification process helps the trainer to distinguish training and non-training problems with their causes, and then, to design training, matching to training problems.

ii) Methods in Task Identification

Commonly used methods for task identification are:

- Interview
- Questionnaire
- Case study, and
- Observation method.

iii) Steps in Task Identification

The steps involved in task identification are:

a) Identify and define the job or major work event for analysis. Job analysis may not always involve an analysis of the entire job, but, often a limited area of a job.

b) Prepare a list of all the tasks involved in it using any of the following methods:

- Seeking expert help
- Use of techniques like observation and interview
- Meeting and group discussion
- Case method.

c) Verify the identified tasks with the help of experts, supervisors and a selected group of employees.

d) Make the final list of tasks.

e) Determine the frequency of performance of each task using the following rating:

Frequency	**Scores**
Rarely	1
Occasionally	2
Fortnightly	3
Weekly	4
Daily	5

f) Work out the relative importance of each task based upon the following rating:

Importance	**Scores**
Slightly important	1
Moderately important	2
Highly important	3

g) Find out the extent of difficulty in learning a task based upon the following rating:

Importance	**Scores**
Easy	1
Difficult	2
Very difficult	3

h) Work out the total score for each task by adding the scores for frequency, relative importance, and extent of difficulty in learning. The priority areas for training can be identified based upon the total score for each

task. A sample Task Identification Worksheet for Village Level development Worker (VLW) is given in Table-1.

i) Recheck the findings with a selected group of experts or leaders in the field.

Table-1: Task Identification Worksheet for VLW

SI. No.	Tasks	Frequency of performance	Relative importance	Learning difficulty	Total score	Priority
1)	Laying out demonstration in farmers' field	2	3	2	7	
2)	Visit to farmers' fields to solve technical problems	5	3	2	10	I
3)	Group discussion with farmers	3	3	1	7	
4)	Writing leaflets in local language	2	3	3	8	III
5)	Writing progress report	3	2	1	6	
6)	Giving lectures to farmers	1	2	2	5	
7)	Attending training programme to update knowledge	3	3	1	7	
8)	Preparation of visuals for communication of farm information	3	3	3	9	II

2.2.2 Task Analysis

Task analysis is a process by which one can know the different elements or sub-tasks involved in every task. It is also used to find out specific elements of the task that are critical for its performance. According to Wentling (1993), the important difference between task identification and task analysis is that the former helps us to identify major blocks of contents to include in training, while the latter helps us to understand what comprises an individual block.

Various steps involved in task analysis are described below:

i) Make available several blank task analysis worksheets.

ii) Use one task analysis worksheets for every task identified and write down the name of the identified task on the corner of task analysis work sheet.

iii) List all elements (or sub-tasks) of each task on its respective task analysis worksheet.

iv) Determine the frequency of performance of each task component using the following rating.

Frequency	Scores
• Rarely	1
• Occasionally	2
• Fortnightly	3
• Weekly	4
• Daily	5

v) Work out the relative importance of each task based upon the following rating:

Importance	Scores
• Slightly important	1
• Moderately important	2
• Highly important	3

vi) Find out the extent of difficulty in learning the task component using following rating :

Importance	Scores
• Easy	1
• Difficult	2
• Highly difficult	3

vii) Work out the total score for each task component and identify priority components. A sample Task Analysis Worksheet for VLW can be seen in Table 2.

viii) Recheck the findings with a selected group of experts or leaders in the field.

Table-2: Task Analysis Worksheet for VLW

Task: Visit to farmers' field to solve technical problems

SI. No.	Tasks	Frequency of performance	Relative importance	Learning difficulty	Total score	Priority
1)	Establishing rapport with the farmers	2	2	2	6	
2)	Knowledge of local farming system	3	2	2	7	
3)	Skill in identification of pest & disease and knowledge about improved	4	3	3	10	I

	techniques to control them					
4)	Skill in identification of problems related to soil health and the remedies	3	2	3	8	III
5)	Knowledge and skill related to nutrient requirements of different crops	4	2	3	9	II
6)	Knowledge and skill related to processing of harvested produce	2	2	2	6	
7)	Knowledge of Market information	3	2	2	7	
8)	Knowledge about Farm input information	2	2	1	5	
9)	Contact with subject matter specialist and experts	1	2	1	4	

2.2.3 Skill Gap Analysis

According to Halim and Ali, the skill-gap analysis is a process of determining the training needs of individual employees in relation to the important tasks-steps or components of tasks identified for training. It determines how skilled or proficient individual employees are on these task-steps or components, how many individuals differ from desired performance and whether or not they need training. The steps used in skill gap analysis are as follows.

i) Prepare a priority list of the tasks, components or steps identified for training from the tasks analysis worksheet.

ii) List the components that were identified on the skill-gap analysis worksheet.

iii) Rate each component in terms of trainee's current level of proficiency to perform it on a point continuum.

Frequency	Scores
• Can not do any part of the task.	1
• Can do less than 50 per cent of the task	2
• Can complete more than 50 per cent of the task	3
• Can do the entire task	4
• Can do the task within the set time.	5

iv) Summarize individual responses by adding up the total score for each item and dividing by the number of different forms that were completed, to find out the average proficiency scale.

v) Identify the components where proficiency is the highest, and where it is the lowest.

vi) Review the proficiency ratings and check those tasks that appear to have low proficiency.

vii) Decide whether the gap can be decreased or removed through training.

viii) Discuss the results of the skill-gap analysis with key personnel working in the area and finalize the curriculum. A sample of Skill-gap Analysis Worksheet for VLW has been provided in Table-3.

Table-3: Skill Gap Analysis Worksheet for VLW

Task: Visit to farmers' field to solve technical problems

Sl. No.	**Components of task**	**Extent of proficiency**	**Whether proficiency a problem**	**Can the problems be solved by training?**
1)	Skill in identification of pests and diseases and knowledge about improved techniques to control them.	(1) 2 3 4 5	Yes	Yes
2)	Knowledge and skill related to nutrient requirements of different crops	1 (2) 3 4 5	Yes	Yes
3)	Skill in identification of problems related to soil health and their remedial measures.	1 (2) 3 4 5	Yes	Yes
4)	Knowledge of local training system	1 (2) 3 4 5	Yes	Yes
5)	Knowledge of market information.	1 2 3 (4) 5	No	—
6)	Knowledge and skill related to processing of harvested produce	(1) 2 3 4 5	Yes	Yes
7)	Establishing rapport with the farmers	1 2 3 (4) 5	No	—
8)	Knowledge about farm inputs	1 2 3 (4) 5	No	—
9)	Contact with subject matter specialists.	1 2 3 (4) 5	No	—

10	Overall skill in visiting farmers' fields to solve technical problems.	(1) 2 3 4 5	Yes	Yes

In this session, you have studied task analysis as one of the important components of training needs assessment. Now, answer the following questions given in Check Your Progress 1.

Check Your Progress 1

Note: a) Write your answer in about 50 words.

b) Check your answer with possible answers given at the end of the unit

1) Write the meaning of Task Analysis.

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2) Name the three major phases in identification of training needs through task analysis approach.

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3) What is the major difference between task identification and task analysis?

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2.3 COMPETENCY MAPPING

Competency mapping is an effective methodology to incorporate the competencies throughout the various processes and to assess the training needs of the organization. It is the most systematic and scientific method of training needs assessment, wherein, the starting point is to understand the job requirements. Thereafter, measuring the competency levels of the employees, the gaps can be identified between the competencies desired and current state of competencies.

2.3.1 Meaning of Competency Mapping

David McClelland (1973) proposed the concept of competencies that are required for effective job performance. He argued that being knowledgeable and/or intelligent only does not indicate that a person is an effective and efficient worker - a worker's performance is a function of his/her knowledge plus skills and attitudes. One should not be judged solely on how knowledgeable they are in their technical subject area of expertise but on how skilful and able they are in delivering services to their clients.

Skill is the ability to perform the job and competency is the requirements of skill set for that particular job. In other words, skills are specific activities, and competence is the ability to carry out an activity effectively, safely, and efficiently. The most critical competencies are those that relate to skills that a development worker is expected to perform. It should also be noted that core competency needs are contextual, and development workers' contexts affect their competency needs and competency levels.

Following are view points of different authors on competencies and competency mapping:

Competencies are the underlying characteristic of an individual, which are causally related to effective job performance - Boyatzis (1982).

Competencies are personal characteristic that contribute to effective managerial performance - Albanese (1989)

Competence is a concept that integrates knowledge, skills and attitudes, the application of which enables the professional to perform effectively, and to respond to contingencies, change, and the unexpected - RCVS (2006).

Competence is the ability to perform the roles and tasks required by one's job to the expected standard - Eraut and Boulay (2000).

Core competencies as a collection of observable dimensions -individual skills, knowledge, attitudes, behaviors, and collective processes and capabilities - necessary for individual, organizational and programme success - Athey and Orth (1999).

A competency is a standard performance of a skill at a predetermined level of performance -Welsh et al., (2009).

Competency Mapping is a process of identifying key competencies for a development organization and the jobs and functions within it.

2.3.2 Steps in Competency Mapping

Sulthana and Madhavaiah (2017) suggested three steps in Competency Mapping:

- First: A job analysis is carried out by asking employees to fill in a questionnaire that asks them to describe what they are doing, and what skills, attitudes and abilities they need to have to perform it well.
- Second: Having discovered the similarities in the questionnaires, a competency-based job description is crafted.
- Third: Having agreed on the job requirements and the skills and attitudes needed to progress within it and become more productive; one starts mapping the capability of the employees to the benchmarks. It helps in determining the training and development needs.

2.3.3 Methods of Competency Mapping

Common competency mapping methods / approaches suggested by Shari Parsons Miller (2018) are:

- Assessment center
- Critical incidents technique
- Interviewing
- Questionnaires and
- Psychometric tests.

Let us discuss them briefly hereunder (Shari Parsons Miller,2018).

Assessment Center

In the assessment center methodology the demands of the job, performance and training needs are mapped in relation to specific job attributes by situational observations, various types of discussions and simulation exercises. The employees are asked to work through certain situations and their behaviour is observed. Finally the current and future requirements of the job needs are assessed by mapping them with skills and aptitude of the employees.

Critical Incidents Technique

In critical incident technique, the data about critical events viz., very good performance or complete failures are collected along with possible reasons through interviews or questionnaires as soon as the job is performed. The incidents are then categorized according to associated job behaviours to reveal patterns of performance gaps, strengths and finally mapped with the training needs.

Personal Interviews

The behaviour of employees is judged with targeted interview questions related to concrete job experiences, general motivation, disposition and outlook. The responses of the interview are compared against the competency map created for the job to determine which employee offers the best match for the organization's needs.

Questionnaires

Job competencies and work performance are assessed by questionnaire method. The data collected through questionnaires includes:

- Work requirements and activities
- Functional job analysis that describes job duties and characteristics
- Occupational analysis inventory that specifies work elements for almost all occupations
- Position analysis that ties job characteristics to human characteristics, and
- Work profiling system that measures ability and personality attributes.

The multipurpose occupational system analysis inventory collected through questionnaires highlights tasks and competencies for jobs.

Psychometric Tests

The behavioural attributes can be quantified through psychometric testing. The most commonly used psychometric assessment tests are:

- Aptitude tests
- Achievement tests.

Aptitude tests identify natural liking in a specific job area, and are designed to help predict how well a person would perform in a given job after being provided with training. Achievement tests measure the level of proficiency achieved in a certain job area after training.

Check Your Progress 2

Note: a) Write your answer in about 50 words.

b) Check your answer with possible answers given at the end of the unit

1) Write the meaning of competency mapping.

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2) Name the three steps in competency mapping.

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3) Write the methods of competency mapping.

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4) How the behavioural attributes can be quantified in competency mapping?

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2.4 LET US SUM UP

In this unit, task analysis and competency mapping methods of training needs assessment are discussed with examples for your understanding. Task analysis is a systematic analysis of jobs to identify job contents, knowledge, skills and aptitudes required to perform the job. A task analysis can help us to determine the learning goals and objectives by describing in detail the tasks and sub-tasks that the employee will perform. Identification of training needs through task analysis approach consists of three phases viz., task identification, task analysis and gap analysis. Commonly used methods for task identification are interview, questionnaire, case study, and observation methods. Competency mapping is a process of identifying key competencies for a development organization and the jobs and functions within it. The steps in competency mapping are job analysis, a competency-based job description and mapping the capability of the employees to the benchmarks. Common competency mapping approaches are assessment center, critical incidents technique, interviewing, questionnaires and psychometric tests.

2.5 KEYWORDS

Assessment Center: In the assessment center methodology the demands of the job, performance and training needs are mapped in relation to specific job attributes by situational observations, various types of discussions and simulation exercises.

Competence: It is a concept that integrates knowledge, skills and attitudes, the application of which enables the professional to perform effectively, and to respond to contingencies, change, and the unexpected.

Competency Mapping: Competency Mapping is a process of identifying key competencies for a development organization and the jobs and functions within it.

Core Competencies: They are a collection of observable dimensions -individual skills, knowledge, attitudes, behaviors, and collective processes and capabilities -necessary for individual, organizational and programme success.

Critical Incidents Technique: In critical incident technique, the data about critical events viz., very good performance or complete failures are collected along with possible reasons through interviews or questionnaires as soon as the job is performed. The incidents are then categorized according to associated job behaviours to reveal patterns of performance.

Psychometric Tests: The behavioural attributes can be quantified through psychometric testing. The most commonly used psychometric assessment tests are aptitude tests and achievement tests.

Skill Gap Analysis: Skill-gap analysis is a process of determining the training needs of individual employees in relation to the important tasks-steps or components of tasks identified for training. It determines how skilled or proficient individual employees are on these task-steps or components, how many individuals differ from desired performance and whether or not they need training.

Task Analysis: It is a systematic analysis of jobs to identify job contents, knowledge, skills and aptitudes required to perform the job. It is an effective and widely used approach for determining training needs in which training needs are linked to task performance.

Task Identification: Task identification or job analysis refers to dividing a major work event into its component parts, which allows a trainer to understand what an individual does in the course of his / her work.

2.6 REFERENCES AND SELECTED READINGS

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2.7 CHECK YOUR PROGRESS: POSSIBLE ANSWER

Check Your Progress-1

1) Task analysis is a process by which one can know the different elements or sub-tasks involved in every task. It is used to find out specific elements of the task that are critical for its performance.

2) The three major phases in identification of training needs through task analysis approach are

   i) Task Identification

   ii) Task Analysis

   iii) Gap Analysis

3) The important difference between task identification and task analysis is that the former helps us to identify major blocks of contents to include in training, while the latter helps us to understand what comprises an individual block.

Check Your Progress 2

1) Competency mapping is a process of identifying key competencies for a development organization and the jobs and functions within it.

2) The three steps in competency mapping are:

   - A job analysis is carried out by asking employees to fill in a questionnaire that asks them to describe what they are doing, and what skills, attitudes and abilities they need to have to perform it well.
   - Having discovered the similarities in the questionnaires, a competency-based job description is crafted.
   - Having agreed on the job requirements and the skills and attitudes needed to progress within it and become more productive; one starts mapping the capability of the employees to the benchmarks. It helps in determining the training and development needs.

3) Common competency mapping methods / approaches are: Assessment center; Critical incidents technique; Interviewing; Questionnaires and; Psychometric tests.

4) For competency mapping, the behavioural attributes can be quantified through psychometric testing. The most commonly used psychometric assessment tests are aptitude tests and achievement tests.