automotive
industrial partnership

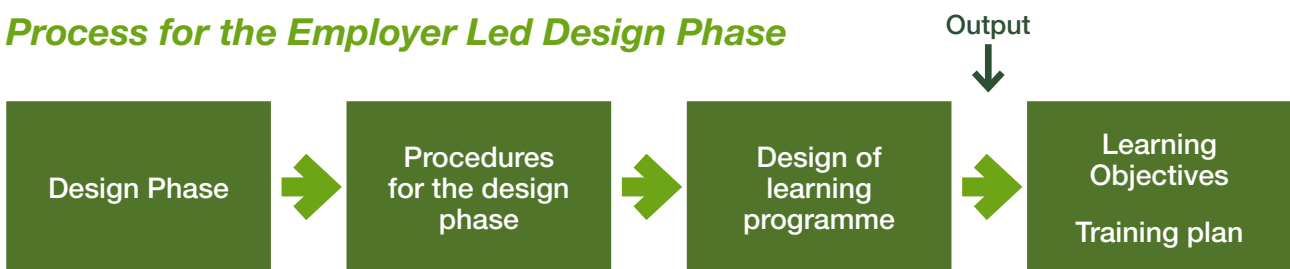# Learning Analysis, Design and Development Framework

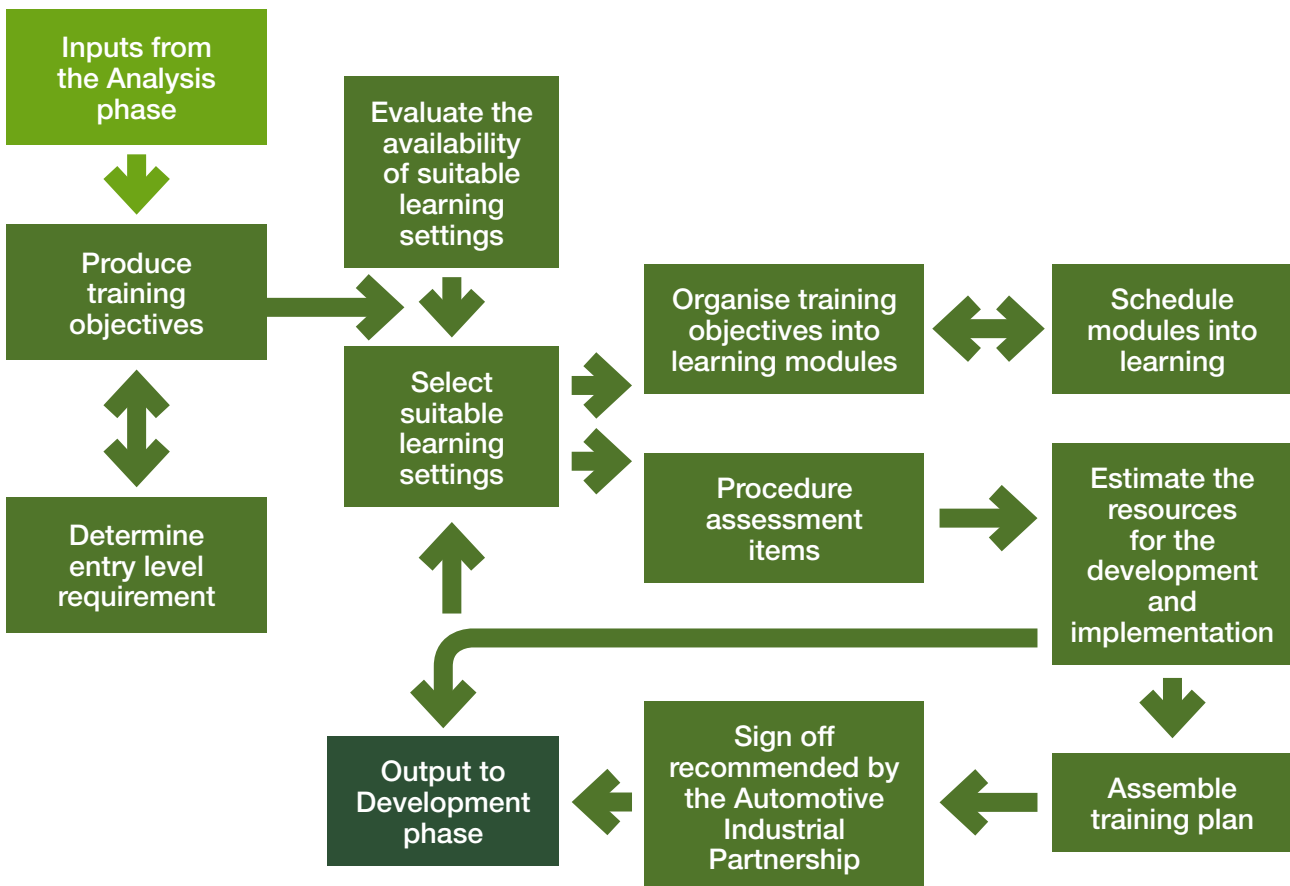*Guidance Document 3 of 4: **Design***

Contents

Employer Led Design Phase

The purpose of the employer led design phase is to convert the competencies (knowledge, skills and attitudes (KSAs), that were selected for learning during the analysis phase), into terminal and enabling learning objectives. In other words, what the learner will be able to do at the end of the training (terminal objective) and how they will get there (enabling objectives). Then, sequence those competencies (KSAs) into a training plan for initial and continuing learning purposes. See below:

Process for the Employer Led Design Phase

Output

| Design Phase | → | Procedures for the design phase | → | Design of learning programme | → | Learning Objectives

Training plan |

Overview of the Inputs and Outputs of the Design Phase

Design Methodology and Delivery Mechanisms

There are many design methodologies and theories for the effective analysis, design, development, implementation and evaluation of learning materials. Companies and organisations will utilise their tried and tested methodologies and delivery mechanisms. But it is important to regularly review these to keep the material fresh and effective.

It is important to note that it has been proven that the most effective learning outcome has come from materials where the learner is able to experience what it's like if something goes wrong, via a managed simulation. This provides stop time to reflect on what has happened, consider previous learning and to seek further advice and instruction. This is achieved via the 70/20/10 model for learning and development, which is commonly utilised within the training profession to describe the ways in which people learn and how to optimise this. The model is a useful reference for developing training and consists of the following:

- **70% - Experiential Learning:** learning and developing through day-to-day tasks, challenges and practice
- **20% - Social Learning:** learning and developing by collaborating with others
- **10% - Formal Learning:** learning and developing through structured modules, courses and programmes

Experience is powerful and the learning is reinforced through informal discussion with people who have performed similar work.

To emphasise the value of experience however, is not to devalue the importance of formal learning. Formal learning is most valuable when it supplies technical skills, theories and explanations that apply directly to the work environment. Think of formal learning as the foundation and starting point from which experiential and social learning can develop. If your formal learning foundation is solid, the experiential and social learning that follows is also likely to be more successful.

Developing Specific Competency Driven Objectives

Respected by many learning and development professionals, Bloom's Taxonomy enables learning designers to develop a systematic framework for the management of learning and the creation of learning objectives. If applied correctly this methodology ensures increased precision and most importantly, assists with the removal of vagueness and promotes the knowledge, skills and attitudes of a subject matter.

Bloom's Taxonomy is divided into learning objectives that sit within three domains:

- Cognitive (Knowledge) " thinking /head"
- Affective (Attitudes) "feeling/heart"
- Psychomotor (Physical Skills) "doing/hands"

This forms a framework to ensure objectives are fit for purpose. Correlating them in the Bloom's taxonomy table gives the designer and developer the answers to the following questions:

- Learning question
- Instructional question
- Assessment question
- Alignment question

Divided into two types of objectives that comprise of:

1. **Terminal Objectives**

    Directly related to specific tasks and competencies, they reflect the learner's performance requirements upon completion of a learning intervention. Terminal objectives are developed for each competency selected for training and depict what the learner's expected standard of performance will be by the end of the training arrangement and describe results, not processes.

2. **Enabling Objectives**

    Learning objectives that must be mastered before the terminal objective can be.

Learning Design Plan

The learning design plan will identify the responsibilities for learning solution development and implementation, including review and approval of learning materials. Please note there are activities and data capture that directly affect the implementation phase. (In particular formative evaluation, see Guidance Document 1). As previously mentioned, the formative evaluation evolves to summative in the implementation phase.

The learning design will consist of the following components:

- List of training objectives ie terminal and enabling
- Training settings to be used to meet those objectives
- Schedule of training modules for both initial and continuing learning
- Identification of those learning objectives that should be addressed for both initial and continuing training
- Identification of those modules that will cover training for more than one staff group or family of jobs
- Entry level requirements of trainees
- Assessment items
- Estimates of resources needed for development and implementation.

At the end of this phase, all steps shown in the diagram on page 4, provide the inputs to the learning plan.

Selecting Training Settings and Scheduling Learning Modules

The plan for learning interventions organises the learning objectives into lessons and related lessons into lesson modules. These learning modules are then sequenced in an order which supports efficient and effective learning. The learning modules are each allocated to a training setting. This is done by placing the objectives in a training setting and scheduling plan. This plan identifies the:

Condition (the setting) in which the learning has to be undertaken. **What (action)** they are required to do? To **what (level)** standard?

Utilising a blend of training settings enhances the learner's ability to learn and has been found to be beneficial to maintain learner motivation. The job task analysis will inform the most effective blend, which in turn will inform how the options for the development of materials inform the development phase.

Designing and Constructing Assessment Items

To ensure learners obtain the correct knowledge, skills and attitudes required from the learning materials to meet competency, assessments must be correctly derived.   This ensures that competency doesn't default to remembering rather than understanding.

Continuous Training

It is important if the learning is to give the business a return on investment that it goes beyond the learning solution and is not just a one off. This will ensure the knowledge, skills and attitudes gained from a learning solution are then applied to the working environment. Over time with assessment, the learner gains full competency of the criteria which make up each task. There are three main categories to ensure the return on investment:

1. Developing knowledge, skills and attitudes beyond the individuals current level.
2. Refreshing those training objectives from initial training, for which competency is not maintained through working on the job. Example objectives include: supporting tasks important to health and safety operations which are infrequently performed, such as those that respond to abnormal or emergency conditions.
3. Learning in relation to changes in procedures and regulatory requirements, and on operational experience feedback.

Entry Level Requirements of Learners

As part of the design of a learning solution, consideration is given to learner entry level knowledge, skills and attitudes. This ensures that learning begins at an appropriate level and unnecessary training is avoided. Specification of the required educational level of job candidates, while important, is not sufficiently specific to determine whether particular knowledge, skills and attitudes should be entry level requirements or included in the learning programme.

In many cases it is necessary to estimate the extent of learner entry level knowledge, skills and attitudes required for a specific job, especially if the learning intervention has been developed for a new way of working. The job task analysis will identify the requirements to set the standards. Pre-assessment of learners would be effective before the implementation of the learning intervention.

Industry Sign off Approval

It is recommended that the Automotive Industrial Partnership provides final industry approval of the design specification. Successful approval will signal the completion of the employer led design phase and will support the development of learning materials.

Should approval not be forthcoming, it is recommended that a referral is made back to the subject matter experts for further design phase refinements.

Reference Materials

Material	Author/ Source
Taxonomy for Learning, Teaching and Assessing	Lorin W. Anderson and David R. Krathwohl
Teaching Training and Learning a Practical Guide	Ian Reece and Stephen Walker
Employers' Views of the Jobs and Skills Required for the UK Automotive Industry February 2016	Sara Bettsworth and Phil Davies

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