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## MUD Analysis Guidelines

*These guidelines are only for use by participants of the Designing for Learning program. They may not be reproduced for any other person or organisation.*

MUD Analysis is an interview-based method of job analysis. It is used to accurately identify ‘job learning needs’, as opposed to individual learning needs or training needs, in order to ensure training is relevant.

The MUD Analysis describes jobs not in terms of job outputs, but rather in terms of different learning strategies (or learning processes) that the incumbent needs to use in order to learn to perform the job. Both what is to be learned, as well as how it should be learned, are identified.

The most common uses of MUD Analysis data are:

- To develop job learning specifications so that appropriate training can be designed for the jobs.
- To modify existing training material to make it more appropriate to the real needs of the job.

### Target Population

All levels and functions in any organisation. The interviewee needs to be fluent in the language used by the interviewer (or vice-versa!), but does not need to be literate.

The same questions are used for interviewing job incumbents, managers/ supervisors and trainers.

### Key Features of the Process

Some important features of MUD Analysis:

- a) It identifies *job learning* needs (i.e. what outcomes, skills, etc. are needed to perform the job in all its facets and aspects), not *training* needs (typically what courses people need to complete). This is very important as learning is the desired result, and training is a possible way of achieving this.

In addition, identifying training needs often leads to reliance on the “shopping list” approach, where people are slotted into available training without considering whether it will actually help develop needed knowledge and skills.

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- b) It picks up more subtle, unobservable, often ignored yet critical aspects of jobs such as judgement, thinking ahead, planning and problem solving, in addition to task-related and more observable aspects such as the carrying out of procedures, and performance of physical tasks. The importance of these various processes, as well as specific examples of each of these are identified.
  - c) It identifies not only what needs to be learned, but also how it needs to be learned. This means that the process of learning can be made apparent to learners, which in turn helps them develop their learning skills at the same time as learning the task at hand.
  - d) It uses the job incumbents as the major source of information, as they are the people with the most direct and up-to-date information on what the job is really about. This data is always checked with other sources, e.g. supervisors, managers and technical support staff. Where differences in the views of these various parties are found, it is instructive to identify and resolve these.
  - e) It can be used to analyse jobs at all levels and also to identify learning specifications and selection criteria for jobs that do not yet exist – by providing a structured process for people, in say project teams, to think through the implications of new systems and work processes for the jobs that will be affected.
  - f) It is relatively straightforward and can be used after a short training and/or practice period.

## Summary of Information Gathered

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Characteristics of the job/function for which training is to be designed:

- a) Overview of the job or function – its purpose and main activities/key performance areas.
- b) The characteristics of the physical environment.
- c) Both the frequency and importance of key tasks relative to the total job/function.
- d) What the incumbent's actual role is in problem solving, decision-making, etc., i.e. what he or she does him or herself, and what is referred to others for decisions.
- e) The relevant technical specifications and data that are performance standards for the job/function.

Characteristics of the learning process:

- a) What is happening “inside someone's head that leads to action.” For example, not just carrying out a procedure, but also the decision as to which procedure to use, why, and when (if ever) to make exceptions. Also, the use of judgement.



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- b) The subtle or informal aspects that are critical to good performance (for example, the need to obtain and use information from peers).
  - c) The learning strategies/processes required of the incumbent as well as the learning content, i.e. the “how” as well as the “what”. This enables trainers to design training so that the learning process becomes apparent to the learners, thereby helping learners to develop learning skills at the same time as learning the product or task at hand.
  - d) The difficulties that people typically experience in learning how to do the job/function, and performing it.
  - e) The performance aids that are available to the incumbent (written job aids, manuals, etc).
  - f) What really makes the difference between good and average learners and performers.
  - g) The rate and nature of changes in the job – indicates the need for learning skills.

## Conducting a MUD Analysis

### Preparing for the interviews

- a) Clarify the purpose and scope of the analysis – which job/s and whether the job/s will be analysed as a whole, or just an aspect of the job/s in question (e.g. the interpersonal skills aspect of a supervisor’s job vs. an entire operator job).
- b) Select interviewees – usually in conjunction with the line manager concerned. As a rule of thumb, interview:
  - three to four competent incumbents per job to be analysed (if possible, with a spread of length of experience in the job); and
  - one or two supervisors/managers of the job in question (i.e. one level above); and
  - someone with experience in carrying out training for this job (if different from the manager/supervisor).
- c) Inform interviewees of the purpose and the timing (allow two hours per interview – often slightly longer for the manager interview).
- d) “Walk the job,” in order to familiarise yourself with the physical environment, and the names of important machinery, materials and resources used in the job.
- e) Ensure that the time and place you have chosen for the interview will be undisturbed for the next two hours.



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## Carrying out the interviews

- a) Welcome the interviewee. Repeat the purpose of the interview and the analysis process as a whole, and emphasise the importance of the information gained directly from the interviewee.
- b) Explain the process of the interview; namely, a series of questions about his or her job, and that you will be recording what the interviewee says. He or she may come back to any point already covered as more things come to mind – it is not in any way a test of job knowledge or competence.
- c) Explain the data feedback and consolidation process, i.e. when all the interviews for a particular job or family of jobs have been completed, the interviewer/s will prepare a draft consolidation of all the data; this will be presented at a meeting of all the interviewees for their comment and ratification.
- d) Carry out the actual interview, using the questions and only prompting the interviewee through explanations of the different categories, or examples from other jobs, not his or her own. That is, avoid saying things like “... but there is planning in your job, for example when you write out the order for the stores for the day...”
- e) Bear in mind the following, as you interview:
  - Stick to the definitions of the various categories (initially read them out).
  - Try to capture a “picture” of what the person is doing.
  - Strike a balance between too much detail and too little. (The information should be understood by someone who has limited technical knowledge of the job).
  - You can always go back to questions, or tentatively complete aspects of the questions in advance, as a result of personal observation of the job.
  - “Why” questions are often useful for getting behind what is really involved in the activities.
  - Interviewees generally warm up during the actual interview. Don't get impatient, be prepared to go back and fill in where necessary.
  - Steer the interviewee off complaining; if possible, re-frame complaints as “problem solving learning needs,” and ask “How do you handle it? Why? What are the consequences?”
  - If you can't categorise information that looks important, write it down where it seems to fit, and categorise it later.
  - Initially, rather have too much information than not enough.



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## Summarising and consolidating the data

- a) When all the interviews have been completed, summarise all the responses to the various questions under the appropriate headings. Mark for further discussion with the interviewees any inconsistencies, gaps or major differences amongst interviewees.
- b) Transfer all the summarised data onto flipchart paper for presentation to and discussion with the interviewee group at the feedback session.
- c) Conduct the feedback session (approximately 90 minutes), taking each category of learning need in turn, and ‘talk through’ the flipchart. Then ask for comment.
- d) Ask the group to rate the relative priority of each category of learning need (use high, and high “plus” if necessary, medium and low), in terms of the job as a whole.

## Sorting the data

Transfer and sort the data onto a matrix with three columns, namely M, U and D. This step is more complex than the previous steps as it requires that you interpret the data.

## Using the MUD Analysis data

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Below are suggestions on how to use the data for specific purposes.

### To develop a training specification

Taking each column in turn, develop training objectives by grouping, summarising, and if necessary, re-ordering the data into objectives to be used as a basis for developing and/or sourcing training material.

### To evaluate existing training material

As for developing a training specification, with two added steps:

1. Compare the existing training objectives and content with that derived from the MUD data.

Hint: Pay particular attention to the conceptual learning needs (items in the “U” column), such as judgment, problem solving and so on as these are often “left out” of training.

2. Use the detail of examples of say problems and decisions, (from the interview data), to assess the relevance of existing material.



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### To identify individual learning needs

Transfer sorted and grouped MUD data onto the vertical axis of a matrix; with performance criteria – e.g. behaviourally anchored rating scales – on the horizontal axis. The performance of each individual can then be rated per learning need, in terms of the performance criteria chosen. The individual learning needs will be indicated by the gaps.

### To develop training and/or selection specifications for jobs that do not yet exist

It is often helpful to carry out a MUD Analysis on jobs that will be affected by change, as these jobs are at the moment. This provides a baseline to help planners, business analysts and managers think about the implications of changes in specific terms. This is particularly important where the actual roles or tasks to be carried out will not change significantly, but the way in which they will be carried out in the future will change (e.g. with the use of technology vs. manually.)

Once the comparison between current and future jobs has been made, a training specification and/or selection criteria can be developed.

