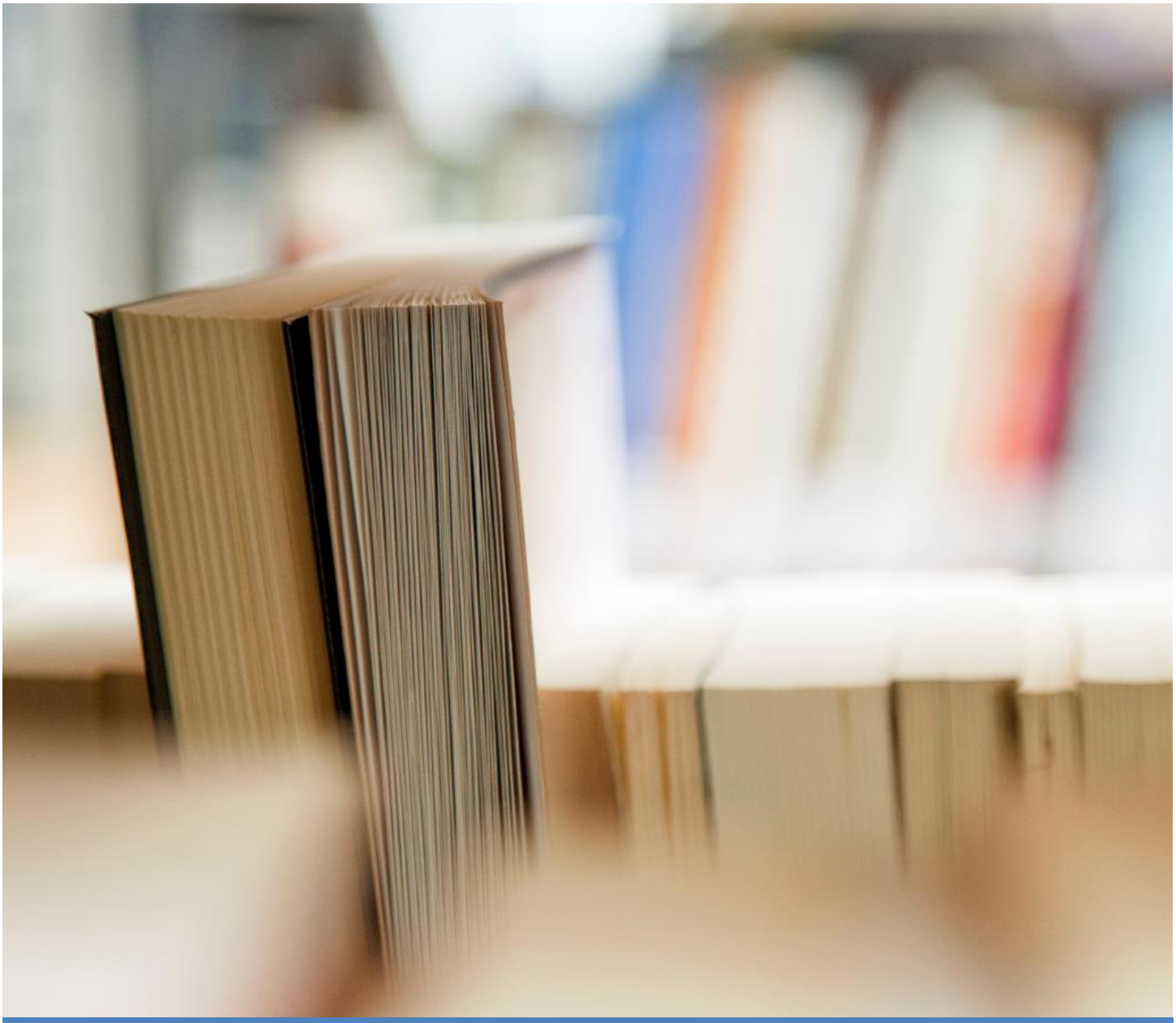

Bio-FIT Training Manual

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CONTENTS

Introduction

Attractive and comprehensive vocational education and training (VET), as well as high quality and easy accessible VET is a main EU objective. This assures better quality of VET specialists – teachers, trainers, mentors, coaches, and advisors. In this respect, one of the main EU aims is to provide clear indicators and auxiliary materials on how to support VET trainers in companies in developing their competences. Those can be further reinforced into actions for all involved stakeholders, depending on national situations and contexts.

Work-based learning (WBL) has gained important value at EU and national levels as one of the basis for boosting employment and growth in Europe and diminishing skills gaps and mismatch. In initial VET (apprenticeship schemes, alternate models and practical classes in VET schools), tutors, instructors, mentors and VET teachers provide work-based training parallel to the school and/or theory-based training, thus ensuring the link between education and real working life. The stronger the link, the easier is job-seeking and job offering, which contributes to raising young people's employability. In continuing VET (CVET), full-time in-company trainers, skilled workers and owners of SMEs help newcomers integrate into the work environment and cater for updating and upgrading the skills of their co-workers, contributing in such a way to raising productivity and competitiveness of the companies.

The Bio-FIT Training Manual is designed to assist in wider understanding of the role and importance of VET in organisational and national contexts in the area of sustainable and green agricultural development. It provides mentor/trainers with competencies that will enable them to effectively conduct VET, facilitate knowledge acquisition, and applied newskills through the use of Bio-FIT training programme. The manual focuses on five core elements of best practice, which relate to important aspects of managing and conducting contemporary VET.

TRAINING UNIT 1. Analysing the Need for Training

Discrepancies between actual and desired performance of a VET can be due to a number of factors, only two of which are inadequate skills and knowledge. Careful assessment of the needs for training can help ensure that training courses are designed appropriately to address gaps, and that training goals and objectives are developed to directly address those gaps.

The main step when analysing training needs is to prepare training needs assessment. Identifying and selecting trainees' needs are the key to conducting any training programme. Trainers or potential trainers must understand the flexibility of the requirements when designing and implementing VET courses for the targeted groups. More frequently, VET courses need to be designed from the beginning. That's why trainers must have skills and be able to prepare or adapt a training curriculum and training materials for the specific audience training needs. At the same time, they should be able to follow a non-formal teaching approach and provide continued assistance to beneficiaries during the post training period.

In this respect several specific Learning Objectives could be defined for this Training Unit:

VET providers should be able to:

LOb 1: Explain how a needs assessment helps in development of a training session.

LOb 2: List the steps for conducting a needs assessment.

LOb 3: Develop tools for a training needs assessment.

LOb 4: Describe how to write a training needs assessment report.

Learning objective 1 (LOb 1): Explain how a needs assessment helps in development of a training session

A Training Needs Assessment (TNA) identifies gaps between how VET trainers/mentors in the field of organic farming are currently performing (the actual performance) and how you would like them to perform (the desired performance). Root causes of identified gaps can be linked directly to the absence of one of the five key performance factors:

1. Clear job expectations;
2. Clear and immediate performance feedback;
3. Adequate physical environment, including proper tools, supplies, and workspace;
4. Motivation and incentives to perform as expected; and
5. Skills and knowledge required for being VET professional.

A training course can address some or all the fifth key performance factors. A clear TNA can assist trainers and agricultural policy makers to decide if a training intervention is appropriate to address an identified gap. The main reasons for conducting a TNA are to:

- define whether training is really needed;
- determine causes of poor performance;
- identify content and scope of a training;
- determine desired training outcome;
- provide a baseline for measurement; and
- gain management support.

Learning objective 2 (LOb 2): List the steps for conducting a needs assessment

The goal of this Learning objective is to improve Knowledge, Skills and Wider Competences / Attitudes (KSC) to meet the needs for agricultural VET provision. Thus, training should be based on corresponding standards and guidelines.

The importance of developing VET standards in the subject area and guidelines is in:

- Making training relevant to the current rural situation;
- Making the training consistent with the national/EU standards and guidelines;
- Providing a basis, or standard, for training evaluation and follow up; and
- Providing a basis for choosing and strengthening a site for biofertilizers application practices.

The baseline/criteria often used to identify the desired performance are:

- Professional description (ISCO/ESCO) of trainees, and
- National standards and guidelines (EQF/NQF).

It may also be necessary to interview other stakeholders, like managers or supervisors, to determine desired performance.

The standards in KSC framework proposed need to be so specific and clear that they are observable and measurable. Once the KAS standards are determined, a TNA is conducted to identify end-users gaps in KSC framework.

What is KSC framework?

- Knowledge, which consists of the information and understanding necessary to perform VET training in defined subject area;
- Skills, which consist of the practical, hands-on activities necessary to perform the tangible VET; and
- Wider competences, which consist of the opinions and beliefs associated with performing a VET.

For identifying the desired performance in specific and measurable terms trainer/mentor should review and identify the general knowledge, skills, and competences required to perform relevant VET. Good definitions of performance have the following qualities:

- They state the accomplishments and/ or behaviour of the performer;
- They are observable;
- They are measurable;

- They can be agreed upon by independent observers;
- They give a clear, unambiguous, yes- or-no answer to "Do they, or don't they?"; and
- They are under the control of the performer.

For each statement of desired performance, trainer/mentor needs to identify a performance indicator that describes a quality, quantity, time, or cost. Once a decision is made on the measurable indicators for the performance in question, targets for each indicator are set up.

Next, using those same indicators and measures, assess what knowledge, skills, and competences VET providers currently possess (the current, or actual, performance, the actual performance should be identified through.

- Decide on methodology to be used,
- Develop assessment tools,
- Collect and analyse the data,
- Conduct a cause analysis, and
- Identify possible performance improvement solutions.

The following steps could be defined when conducting a TNA:

Step 1: Identify the problem - the desired performance must be determined and compared to the actual performance.

Step 2: Decide on methodology - Who or what should be assessed? Sample size? What methods should be used?

Step 3: Decide on the assessment tools to be used and develop them.

Step 4: Data collecting –identifying who should collect the data, what time will be allocated, and how the process will be supervised.

Step 5: Data analysis and presentation –selection of appropriate analytical methods (qualitative and/or quantitative).

Step 6: Causal analysis and recommendations – performance of causal analysis to determine if poor performance is linked to the absence of KSC or other root causes. Decision on what training is needed.

Learning objective 3 (LOb 3): Develop tools for a training needs assessment

Developing appropriate tools is a very important step in the process of designing a TNA. A good tool will accurately measure what should be assessed. Depending on the objectives of the needs analysis, an appropriate tool must be selected and/or created. Such tools might include:

- An interview with VET providers,
- Questions for focus group discussion,
- Case study,

- Checklists for biofertilizers production and application, and
- Sample forms for facility/ equipment assessment or inventory.

Learning objective 4 (LOb 4): Describe how to write a training needs assessment report

Once the data has been analysed, areport should be written which includes:

- Overview: A brief overview of the purpose, objectives and results of the TNA.
- Description of the Process: Describe the entire needs assessment process, including the purpose, the method(s) used to collect information, and the people involved.
- Summary of Results: In this section the data should be clearly and concisely presented and should highlight any significant patterns or results.
- Preliminary Conclusions: Describe the analysis of the data and focus on key issues that you have observed. Explain what conclusions you have made and why.
- Recommendations: Make recommendations regarding the training. Address the most critical issues or training areas first. Identify training issues, being clear about how the program should be implemented, who should be involved, and how, when, and where the training should take place.
- Potential Barriers: Offer suggestions of potential barriers and possible solutions.

TRAINING UNIT 2. Planning for Training

Conducting a successful training course requires much advance planning, including identification of participant needs through a needs assessment and the application of this information to the training plan. By reviewing the techniques of training needs assessment and the use of training objectives the skills necessary to plan for training courses will be provided. The guiding principles in curriculum and program development are that programs should be:

- developed in conjunction with stakeholders,
- linked to the national qualifications framework and developed with input from curriculum design experts.
- the immediate focus should be cantered on the effective implementation of the revised programs, which have been designed under the guiding principles mentioned.

In the longer term, these programs should be subject to evaluation and review to ensure that they continue to meet the preliminary defined needs. The evaluation and review process should involve the collection, compilation and analysis of data from student surveys, employer feedback and monitoring international trends.

The specific Learning Objective (LOb) in this Training Unite are as follows:

VET specialists should be able to:

LOb 1: Describe the steps needed to plan for training implementation.

LOb 2: Describe how to choose participants.

LOb 3: Develop selected components of a training curriculum.

LOb 4: Describe how to pilot test the training curriculum.

LOb 5: Explain the importance of developing tools to assess knowledge and skills.

LOb 6: Explain how to choose a training site.

Learning objective 1 (LOb 1): Describe the steps needed to plan for training implementation

To develop a training plan, 10 questions, each corresponding to a step in the process, are used to guide the trainer. The answers to the questions will develop a complete training plan.

1	What is the problem/training gaps?	Identifying training topics.
2	Who are the trainees in the VET course?	Selection of trainees.
3	What will trainees be able to do after the training?	Developing training objectives.
4	What will they be trained on?	Deciding on the training content.
5	What methodologies will be used?	Identifying the training methodologies.

6	What materials/ training aids will be needed?	Preparing training materials and training aids.
7	When/where will the training be conducted?	Deciding on the time and location.
8	How will the training be evaluated?	Selection of the evaluation methods.
9	Who will be the trainers?	Selection of the trainers.
10	Where will funding be allocated?	Identifying the source of funding.

Learning objective 2 (LOb 2): Describe how to choose participants

Before any training takes place, the criteria for selection of trainees should be developed in respect to:

- An appropriate number of participants in the VET course,
- Definition of necessary background knowledge and skills required for the training,
- Selection of an appropriate mix of trainees with similar skill levels and professions so that the training is appropriate for everyone,
- Identifying the trainees who will be able to practice their skills immediately after the training.

Generally, the trainees are selected on the basis of several criteria including information on motivation level; ability and experience; knowledge of existing employment opportunities as VET providers; available resources, etc. The points assigned to each element in the criteria should be adjusted relative to the type of target group selected. In order to assure successful training of VET specialists in the relevant area (for example “Biofertilizers production and application”) written criteria for the selection of VET training participants should be provided to all possible applicants. These criteria may include:

- Trainees have an interest in the subject area of the provided training services and they have the appropriate background to learn the new skills.
- Trainees are able to participate throughout the whole training course.
- Trainees are able to practice their new skills after training course completion.
- Inappropriate trainees are rejected on the basis of the selection criteria.
- Trainee’s selection is competitive, based on submission of a proposal or written document.
- Be flexible and creative in trying to solve a problem related to selection.
- Motivate trainees by rewarding them with technical material and certificates.

Learning objective 3 (LOb 3): Develop selected components of a training curriculum

Development of a training curriculum is an important step in the process of planning a training. Usually, a modular approach to training is the most suitable. Learning packages are

developed on the basis of interrelated elements that cover a single topic. The modular approach is flexible and allows tailoring to particular trainees so that they can slot in or out of courses within certain limits to acquire or upgrade the skills they require.

There are a number of important considerations while preparing the curriculum of VET programmes.

- The training curriculum should be flexible, changeable and adaptable to people with specific needs.
- It should be trainee-centred, and take into account trainees background, age, education, experience, skill levels and immediate employment possibilities.
- A trainee needs assessment is essential to analyse the skills level and management ability of the individual as the basis for designing the curriculum.
- Curriculum content should be tailored to providing requisite skills in the specific subject area.
- Use non-formal methodologies for skills development such as discussion, demonstration, role play, case studies, practical exercises, group and individual presentation, practical field visit, and experience sharing.
- Emphasize practical hands-on training rather than theory. The ratio is practical 80 per cent and theoretical 20 per cent.

During the development of a training curriculum, 5 basic components should be considered:

1. Goals/Objectives/ Activities
2. Training/Learning Methodology
3. Time Line
4. Materials and Training Aids
5. Course Evaluation

Development of **Training Curriculum Learning Objectives** is a key issue as they:

- Serve as basis for the design of the whole instructional plan, including determining appropriate training content, methodology, and site;
- Are applied in assessing the training; and
- Are used to facilitate active learning.

There are 2 levels of objectives: general and specific. A general objective describes those tasks that trainees will be able to do after training. General objectives are related to professional jobs or tasks.A specific objective describes what the trainee will know or be able to do after the completion of a section of training. This is also known as the KSC, or knowledge, skills and competences, required to achieve the primary objective. There are 4 main components to writing a specific objective:

1. Identify when the knowledge or performance is to be demonstrated.
2. Identify who is to demonstrate competency.
3. Provide a description of the expected performance.
4. Describe how well the performance must be demonstrated.

Once objectives, practice, and feedback are incorporated into the course design, the next step in the design process is to select the methods for the actual training. There are many methods from which to choose. When selecting a training method, answer the following questions:

- Is this method appropriate for the objectives?
- Are there sufficient trainers available to use this training method?
- Are there resources available to use this training method?
- Are some specific facilities required?
- What is the projected size of the group to be trained?
- Is a special classroom arrangement required?
- Is this method appropriate for group training, individualized training, or both?
- What times are available for training?
- What is the background of the trainees?
- Will the methods selected stimulate interest and provide variety?

Training materials are critical in the delivery of training. Their effective use can ensure that a variety of learning stimuli are used during training. Integrating different types of materials into training will help maintain the interest and attention of trainees. There are five general classifications of training materials. These include:

- Printed materials,
- Non-projected materials,
- Projected materials,
- Audio-visual materials, and
- Computer-based materials.

Next, the course outline and training delivery should be planned. This includes design of all supporting document, not a teaching or presentation document. For each enabling objective presented during the course, the trainer must select appropriate practice activities, training methods, and materials. Combining all of these elements creates the course outline.

During development of a training curriculum a course schedule/agenda must be prepared. It represents a day-byday description of all training activities. Trainees are given the course schedule so they can see the sequence of course activities. Information appearing on a course schedule includes:

- The course name,
- Days of training (days of the week and/or day number),
- Time blocks for all training activities, and
- A brief description of all training activities.

Learning objective 4 (LOb 4): Describe how to pilot test the training curriculum

Before implementing a new training curriculum, it should be pilot tested in order to evaluate whether the objectives, content, time allocation, training materials, and tools for

assessment are appropriate or not. The Pilot Test of a Curriculum comprises the following steps:

1. Performance of a trainers' workshop to finalize the curriculum, including; objectives, content, module/ material, training site, materials or aids.
2. As training is piloted, a record is made on the training time, content, methodologies, time management, and feedback from each trainee.
3. As part of evaluating the training, tests are given to trainees to evaluate their progress after certain training topics. Feedback on content, methodology, handouts, time allocation and training site, and training materials are collected.
4. After the pilot test is conducted and evaluated, trainers should tune and revise the curriculum. Changes should be made to the training curriculum to address problem areas (methodology, materials, pre- and post-course tests) marked out.

Learning objective 5 (LOb 5): Explain the importance of developing tools to assess knowledge and skills

The assessment of training is of crucial importance in order to:

- Determine whether the training has achieved its objectives.
- Assess the value of a training program.
- Point out the areas of the program that need improvement.
- Identify the appropriate audience for future programs.
- Review and reinforce key program points for trainees.

Assessment must be focused on the 3 aspects of training: knowledge, skills and wider competences. The last ones (wider competences) are the most difficult to measure because they are like opinions or prejudices, and are generally part of a person's background and personality. Wider competences that can be measured are shown by communication skills, counselling skills, or mentoring skills. The assessment is generally carried out:

- On a daily basis.
- During the training program.
- At the end of the training program.
- After participants have returned to their work sites.

Knowledge- Based Assessment

Measuring an individual's acquisition of knowledge using an assessment tools or test is a complex process. To measure knowledge acquisition effectively, a test must be well designed. A good test:

- Measures accurately validity
- Measures consistently reliability
- Is objective
- Is discriminative

- Is comprehensive and is easy to use

After development of group of tests, their review and editing, selected questions are organized in knowledge test or questionnaire. VET trainer must decide on the number and type of questionsto be included and the order in which they will be presented to the trainee. Directions for the trainee and a scoring methodology must be developed. After the test is assembled and the directions are written, it is a good policy to review each part critically. The grammar should be checked and the following questions asked:

- Are developed questions covering all the objectives in the training material?
- Does the number of questions adequately reflect the training material?
- Does each item really measure the trainee attainment of the objective?
- Is provided directions clear?
- Are tricky, obvious, or irrelevant questions avoided?
- Is each question separate and independent from the rest of the questions?
- Are similar questions grouped together?
- Is the test designed so that it is easy to score?
- Will trainee be provided with meaningful feedback about their answers?

When possible, the test should be piloted before it is used in regular training programs.

Competency-Based Assessment

When using competency-based tools such skills as communication, counselling, problem-solving, and organizational managing of the providers are evaluated. The most common tools are checklists and case studies, which teach a wide variety of skills and activities in a realistic job-related situation and make evaluation of performance more objective.

The main advantages of competency-based assessments are as follows:

- To ensure that training is based on a standardized procedure;
- To help standardize training materials;
- To form the basis of trainer demonstrations;
- To function as a self- or peer-assessment tool;
- To guarantee that all trainees' skills are assessed according to the same standard; and \
- To provide a basis for follow up evaluations of trained VET specialists.

However, some limitations exist in the competency-based assessments:

- Investing in time and effort to develop tolls for assessment;
- Could be used by VET specialists having background in agricultural practices or activity to be learned.

Two types of rating systems could be used in competency-based skill development and assessment: numerical and pass/fail.

- A numerical rating scale assigns numbers to specific levels of performance. This allows trainers and trainees to easily measure their progress and is generally used with training guides.
- A second type of rating scale is the yes/no (e.g., pass/fail, satisfactory/ unsatisfactory) system, which often is used with checklists.

Learning objective 6 (LOb 6): Explain how to choose a site for field training

The success of a competency-based training program depends upon having a site where trainees are exposed to adequate numbers of cases and are practicing in a supportive environment that reinforces standards set in the training program.

Sites for field training should be selected based on the following criteria:

- Compliance with the geographical area, climatic conditions and crops grown;
- Accessibility to equipment, supplies, and substances (biofertilizers);
- Availability of staff (number of staff, skills needed);
- Transportation accessibility; and
- Prediction of possible obstacles/ barriers.

TRAINING UNIT 3. Training Delivery

With careful planning, trainers can ensure that training objectives reflect training needs, and that learning methodologies lead trainees to meet those objectives. The main objective when delivering a VET is to be able to develop plans for conducting an effective training course in relation to the preliminary set up training programme. Each VET provider should be acknowledged with the various types of training delivery. In this respect the specific Learning objectives in Training Unit 3 are as follows:

VET specialists should be able to:

LOb1: Demonstrate the four types of role-play.
LOb2: Demonstrate a variety of advanced brainstorming techniques.
LOb3: Demonstrate how to develop a case study.
LOb4: Demonstrate the technique of mind mapping.
LOb5: Demonstrate the use of advanced lecture techniques.
LOb6: Demonstrate the use of advanced discussion techniques.
LOb7: Demonstrate the use of games and experiential learning exercises.

Learning objective 1 (LOb1): Demonstrate the four types of role-play

When role-play exercises are used, trainees practice skills they have been acquired in a roleplay situation. Role-play is a good method for teaching attitude, counselling skills, and sometimes problem-solving. There are four forms of Role-Plays:

1. Scripted Role-Play uses a preliminary prepared written scenario before the time to conduct the role-play training.
2. During Coaching Role-Play trainer demonstrates a skill while including others in asking and answering questions about the problem to be solved.
3. Spontaneous Role-Play is used by the trainer during a general discussion to demonstrate an approach or a way to handle a situation.
4. Rotating Trio Role-Play gives each person in a group of 3 a chance to play a different role. The role-play consists of 3 different rounds. Two persons from the group participate in acting the different scenarios and the third person often acts as an observer who comments on the role-play.

By acting scenarios trainees can explore how other people are likely to respond to different approaches; and how can get a feel for approaches that are likely to work, and for those that might be counter-productive. Trainee can also get a sense of what other people are likely to be thinking and feeling in the given situation. Also, by preparing for a situation using role-play, trainee build up experience and self-confidence with handling the situation in real life. Some disadvantages in using role-play as a method are:

- Role-play is often time consuming.
- It needs careful instruction.
- It sometimes requires a lot of preparation.
- It cannot be used to assess attitude.

Learning objective 2 (LOb2): Demonstrate a variety of advanced brainstorming techniques

The term brainstorming has gained common usage in the English language as a generic term for creative thinking. Brainstorming creates new ideas, solves problems, motivates and develops teams in a group situation based on the principle of suspending judgment.

There are many variations of brainstorming, although the basic rules are the same.

- Classic Brainstorming: process for bringing out as many ideas as possible, as quickly as possible, without censoring them.
- Rawlinson Brainstorming: facilitator describes the problem and then tells ways s/he has used to solve the problem that have failed. The facilitator then asks trainees to offer other solutions.
- Imaginary Brainstorming: provision of imaginary solutions to an imaginary problem and then applying these solutions back to the real problem.
- Trigger Brainstorming: defining the problem and each trainee writing down a list of solutions. Trainees cross out shared ideas and each idea as read may trigger other ideas in other trainees.

In general, the brainstorming process comprises:

1. Define and agree the objective.
2. Brainstorm ideas and suggestions having agreed a time limit.
3. Categorise/condense/combine/refine.
4. Assess/analyse effects or results.
5. Prioritise options/rank list as appropriate.
6. Agree action and timescale.
7. Control and monitor follow-up.

Learning objective 3 (LOb3): Demonstrate how to develop a case study

A case study is a training method that refers to a realistic account of a problem and how it is handled. It uses problem solving to reinforce trainees' knowledge. Cases studies may be especially appropriate for developing higher order intellectual skills such as analysis, synthesis and evaluation. It enhances retention, recall, and the application of knowledge to real situations. The primary advantage of a case study is that it focuses on a real situation.

Two Types of Case Study

1. Full Information: In this type of case study all of the relevant information for preparing the case study is given at the beginning.
2. Incremental: Here, the information is given in phases. When the trainee finishes 1 section of the case study, the part is discussed thoroughly before moving on to the next section.

Case Study has the following advantages as a training method:

- It develops cooperation and interpersonal skill among participants.
- It facilitates analytical and communication skills of participants
- Case studies help trainee develop problem-solving skills.
- Case studies use realistic and relevant cases that relate directly to trainees' work.
- Trainees learn that there may be different perspectives or solutions to the problems presented in the case study.
- Either the trainer or trainee may develop case studies.

However, Case Study has also some disadvantages:

- It is more time consuming compared to other direct methods
- Case studies sometimes lack realism and immediate relevance to organisational settings
- Some case studies may difficult for trainees to imagine the situation happened when presented in written form.

Using Case Studies in training may be done in the following 6 steps:

Step 1: Provide the case study scenario.

Step 2: Tell trainees what you expect them to learn from the case study. (Give them the learning objective.)

Step 3: Give them time to learn and absorb the details of the study and to think about how they might solve it.

Step 4: Guide the group through the discussion of the case study. To do this:

Step 5: Bring the groups together and ask them to present their results.

Step 6: Summarize and bring together the results of all of the groups.

Learning objective 4 (LOb4): Demonstrate the technique of mind mapping

Mind mapping is a form of brainstorming. Its main purpose is to generate as many ideas as possible without taking into account the quality of the ideas. The difference is that in this form of brainstorming, the ideas are mapped out, rather than written in linear fashion. There are several ways to do mind mapping.

1. Development of a flip chart (Fig. 1) through:
   - Writing the problem in the center and draw a circle around it.
   - Identifying the major components of the problem by brainstorming, and write each of these on a line coming out of the circle.
   - Drawing branches off these lines to record the details in case the brainstorming continues and becomes more comprehensive.

- Illustrating and adding images next to main line if necessary.
- Doing the brainstorming very systematically from the center outward, or jumping from place to place as ideas develop.

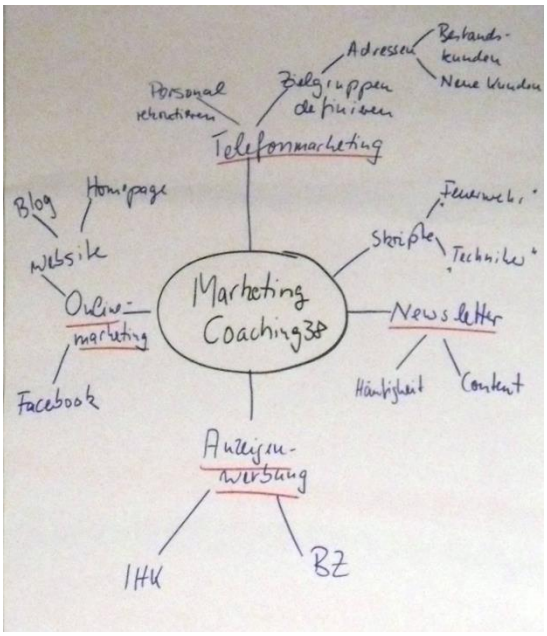

Fig 1. Developing a flip chart

2. Another form of mind mapping works well when you have 2 main components, such as the advantages and disadvantages of something. In this form of mind mapping the shape of a tree is used with the main topic as the trunk and the 2 main branches as the advantages and disadvantages (Fig. 2).

Fig. 2. Mind mapping tree

Applying Mind Maps in training delivery have the following advantages:

- Speed: You can develop ideas fast.
- Remember more: it is widely accepted that a mind map can greatly stimulate your brain in new ways than normal linear notes can't.
- Eases the study process and makes it fun: one of the biggest advantages of mind mapping tools is that you can use them to make studying a breeze.
- Easy to add ideas later on: mind mapping tools make it easy to add new ideas. It's as simple as adding more branches to a virtual tree.
- Connected facts: mind mapping tools teach you how to focus on relationships and links that exist between ideas in order to help you get connected facts.
- Adaptable: mind mapping tools can easily adapt to a wide variety of tasks, from lectures to reading from books and writing essays or business plans.
- Perfect overview of your ideas: probably the biggest advantage of mind maps is that they help you create a deeper understanding of the topic of interest, which means you will get a perfect overview of all related ideas, concepts and thoughts.

However, mind maps also come with their set of drawbacks. Here are some of the most notable ones.

- Difficult to use by people who are extremely logical: mind mapping can be extremely useful in a brainstorming session, as it encourages creativity and innovation. However, logical people might find it hard to trust their creativity or intuition, because logic is the dominant side of their thinking pattern.
- Takes time: creating a mind map can take a lot of time.
- Might be difficult for others to understand: once you have created and personalized your map, it might be difficult for those around you to understand all your ideas and concepts.

Learning objective 5 (LOb5): Demonstrate the use of advanced lecture techniques

A lecture is an oral presentation intended to provide information or teach people about a particular subject. Any discussion or lecture can become much more interesting if trainee participate. The trainer's behaviour can either encourage or discourage participation. Trainers do this through:

- Nonverbal Communication: Eye contact, head nodding, posture, body movement, smiling or frowning.
- Verbal Communication: What you say and how you say it can either encourage or discourage participation.
- Praise or Encouragement: What you say and how you say it can either encourage or discourage participation. Use simple words of encouragement like, "I'm glad you brought that up." "What a good idea." Or,
- Accept Feelings: Use statements that show you accept feelings or ask for clarification of feelings.

Varying lecture techniques can increase participation in lectures, increase interest in the subject being taught, and improve effectiveness of the presentation. Key Words can be used to highlight the important issues in a lecture. Animated lectures also stimulates interest and helps trainees remember the lecture content. Using Examples is a good way to clarify teaching points. Good lectures often contain examples, analogies, and metaphors.

Learning objective 6 (LOb6): Demonstrate the use of advanced discussion techniques

A discussion is an exchange of ideas on a topic of mutual interest, with or without moderation by a leader. It can be totally unstructured and spontaneous, or it can be highly structured. Discussions can be held in a large group, or the group can be broken into smaller ones. Different discussion techniques can increase participation in lectures, increase interest in the subject being taught, and improve effectiveness of the presentation.

The most effective way in this technique is breaking a larger group into smaller groups to discuss a define topic. After some time the larger group reconvenes to discuss the results of their small group discussions.

There are many variations of small group discussions. But, there are 3 very useful techniques:

1. The “66” Discussion Technique: The “66” discussion technique is a way of structuring small group discussions. Divide trainees into groups of 6. Groups could have different or similar topics. Allow groups 6 minutes to talk about the issue. Post results on flip charts.
2. The Fishbowl: The fishbowl involves dividing a large group into two smaller groups. One group forms an inner circle, where they discuss a topic. The second group forms an outer ring around the fish bowl. The outer ring listens and observes, while those in the fish bowl discuss a topic. After an agreed time, the groups switch places. After both groups have had a chance to be in the fishbowl, the larger group reconvenes for debriefing. A fishbowl can also be used as a technique for role-playing.
3. Teams: Rather than dividing trainees into discussion groups, divide them into teams. Ask each team to solve a problem, but make the exercise competitive.

Learning objective 7 (LOb7): Demonstrate the use of games and experiential learning exercises.

Basically, it is activities that designed to motivate, engage, involve learners with the course content by addition some techniques and rules to those activities. Instructional games are focused on 2 main purposes in the learning process: understanding and motivation. Instructional games can serve a number of purposes.

Instruction: Games can be used as instructional techniques.

- To assess trainees’ knowledge or skills prior to training.

- To teach new content or skills, provide new information, or explain new concepts.
- To review or reinforce learning points.
- To assess how much trainee have learned.
- To contribute to the learning objectives related to competition, cooperation, and teamwork.
- To make learning fun.
- To provide different levels of complexity that match trainee's ability.

The main advantages and disadvantages of instructional games are as follows:

Advantages

- Capitalize on the competitiveness of students.
- High in entertainment value.
- Varied methods of learning.
- Unique formats.

Disadvantages

- Entertaining consequences for incorrect responses.
- Unwittingly incorrect answers can sometimes be more entertaining than correct ones.
- Vision and sound effects often become the focal point.
- Indiscriminate use of computer capabilities can distract from the purpose of the game.

TRAINING UNIT 4. Evaluating Training

Evaluation means analysing the records to find out whether the programme is achieving its objectives and consequently suggesting necessary improvements. There are 4 levels of evaluation used by trainers. These 4 levels are:

- Level 1: Trainees reaction to the training,
- Level 2: Learning,
- Level 3: Behaviour or Application, and
- Level 4: Impact or Results.

In this unit, the main specific Learning Objectives are VET trainers to be able to:

LOb1: Provide an overview of the four levels of evaluation.

LOb2: Develop tools for Reaction Evaluation.

LOb3: Develop tools for Learning Evaluation.

LOb4: Describe Behaviour Evaluation.

LOb5: Describe Results Evaluation.

Learning objective 1 (LOb1): Provide an overview of the four levels of evaluation.

The main reasons to evaluate training are:

- To determine whether the training achieved its objectives.
- To assess the value of training programs.
- To identify areas of the program that need improvement.
- To identify the appropriate audience for future programs.
- To review and reinforce key program points.

Persons who could participate in training evaluation are Trainers, Trainees, An unbiased outsider, and Funding agency. According to Kirkpatrick, four Levels of Evaluation exists:

Level 1: Trainees reaction to the training. This evaluation is performed at the end of the training using reply cards or info sheets.

Level 2: Learning. This evaluation gives answer to the question “What knowledge or skills did trainees retain?” It is done during or right after training, this level includes pre-and post-tests, skills checklists, and oral examinations.

Level 3: Behaviour or application. This evaluation is focused on how trainees apply their new knowledge and skills. Generally, this is done 3-6 months after training to evaluate the more lasting results of training. It includes observation of skills, interviews, surveys, and testing knowledge again.

Level 4: Impact or results. During this evaluation process, the impact of the training on the community is assessed. These evaluations include service statistics and exit interviews to determine short-term impact, and demographic data to determine long-term impact.

A new and important level of evaluation is also the Return on Investment (ROI).It is partially included in a Level 4 evaluation. However, some evaluation experts think that it is so important that it should be considered a fifth level. It is commonly known as ROI. The measurement compares the financial benefits of the program with the costs of the training program (training materials, facility, trainers, and trainee).

Learning objective 2 (LOb2): Develop tools for Reaction Evaluation

These evaluations deal with trainees' reaction and is an important first step in determining the success of a training program. Trainees' reactions help determine the effectiveness of a program and how it can be improved. This type of evaluation can't measure the ability to apply the learning, changes in attitudes or beliefs, organizational impact, or the trainer's technical knowledge.Designing aTrainees' Reaction Evaluation Form include two main steps:

1. Step 1: Selection of categories - content, materials, instructional methods, trainer, environment, and logistics.
2. Step 2: Definition of appropriate format - formats may include the following:
   - 2-choice questions with space for explanation or comments (yes/no, agree/disagree);
   - Short-answer, open-ended questions (What part of the workshop was most useful to you? Why?);
   - Complete the sentence "What I want to know more about biofertilizers is...;"
   - Ratings from strongly agree to strongly disagree;
   - Ranking topics in order of their appreciation.

Learning objective 3 (LOb3): Develop tools for Learning Evaluation

Learning evaluation measures what trainee learned during the training session. There are 3 methods of evaluation: objective tests, observation, and interviews.

Objective Tests

They should comply with the following requirements:

- Types of Questions - Test questions may be subjective (short-answer or essay), or objective (multiple choice or true/false).
- Question Format — All multiple choice questions should have a part that presents a problem and asks a question. All of the possible answers given should be plausible. The greater the number of items included, the more reliable the test.
- Correct Answer — The correct answer format asks a simple question, to which there is only one answer.
- Best Answer - This type of question has more than one correct answer. This type of question requires a higher level of thinking, but is more easily challenged.

- Combined Response - This type of question has a list of possible choices and a second list of possible combinations of answers. This type of question is difficult to write and difficult to answer.

Observation

Trainers may observe trainees practicing and applying skills, tools, and techniques during the session. This can be done through, direct observation of trained skills, role plays, simulations, or case studies. Generally, a competency-based checklist is developed by breaking down the skill or activity to be taught into its essential steps. Each step is then analysed to determine the most efficient and safe way to perform and learn it. These checklists make learning the necessary steps or tasks easier and evaluating the learner's performance more objective. In addition to using checklists to learn a skill, trainee and trainers keep track of progress in the subject area. The checklists contain enough detail to permit the trainer to evaluate and record the overall performance of the skill or activity.

Interviews

Within a week of the training, trainees are interviewed in order to gather information about what they have learned during the training session.

Learning objective 4 (LOb4): Describe Behaviour Evaluation

This evaluation answers the question, "How has the training affected the way participants perform their jobs?" However, behaviour evaluations can be both time consuming and costly.Their purpose is to:

- Evaluate what happens to trainees after they leave training and return to their jobs;
- See how much transfer of knowledge, skills, and attitudes has occurred;
- Measure the durable results from training;
- Identify areas in which trainees show greatest and least improvement; and
- Compare follow-up and end-of program responses.

In summary, Behaviour evaluation measures what change in job behaviour occurred because people attended the training program.

Performance of this type of evaluation could be done trough:

- Observations: The trainee should be observed on the job. Competence-based checklist used during training should be also used in the observation.
- Interviews: People who are closely associated with the trainee are interviewed. Interview questions are carefully designed to focus on specific behaviour changes such as counselling skills.

- Surveys: Surveys are the more efficient and the less expensive way to find out if trainees are actually applying what they learned. When using the survey method it is also easy to include a control group of VET providers who did not participate in training. Surveys usually include a rating scale because they are more objective and easier to analyse than written answers to questions.

Learning objective 5 (LOb5): Describe Results Evaluation

Describing the results evaluation measure the impact of training on the program or organization and how it contributed to accomplishing the goals or objectives of the program or organization. This type of evaluation is both difficult and time consuming. It is difficult to measure the impact of training because so many variables may come into play. It is difficult to determine whether a change was the result of the training or another variable. Because of the complexity of this type of evaluation, it is rarely used.

The main tips in performing results evaluation are:

- If possible and practical, use a control group. Thus, factors other than training that could have caused the observed changes are eliminated.
- Allow time for the results to be achieved. It is impossible to say exactly how much time is necessary, but newly-trained VET providers must have a chance to practice their skills long enough to show a change in their skills and behaviour. There are usually records and statistics available to determine the situation before the program.
- Repeat the measurement at appropriate times. Each program or project must decide how often to evaluate. Results may change in either a positive or negative direction.
- Consider the cost of results evaluation versus the benefits. How much will it cost to conduct an evaluation of this type? Results evaluations are usually extremely costly and time-consuming. The amount of money spent on this type of evaluation should be determined by the amount of the training costs. The higher the number of trainees, the more important it is to conduct a results evaluation to determine the cost-effectiveness of the training and whether the program should continue.

Return on Investment (ROI)

ROI measures and compares the (financial or other) benefits of the program with the program costs. Calculating the cost of a training program, include:

- The cost to design and develop the program;
- The cost of the program materials for each trainee;
- The cost for the instructor/facilitator, including preparation time, travel, and lodging;
- The cost of the facilities for the training program;
- The cost of travel, lodging, and meals for trainees (or per diem);
- Administrative and overhead costs of the training.

Calculating the Benefits of the Program is the most difficult part of ROI evaluation. The benefits are related to the impact observed in the Results evaluation. It is almost impossible to apply a financial value to program benefits.

TRAINING UNIT 5. Training Follow-Up

For training to be truly successful, trainees must be able to use their new skills and knowledge and apply them when they return to their jobs. Only when the trainees have been able to apply the new skills and knowledge that they have acquired during training, has the transfer of knowledge really been achieved. Following-up with trainees once they return to work is essential to make sure the trainee can apply the training in a suitable environment, to reinforce the learning process, to determine what aspects of the training were not well absorbed, to clarify confusion and misunderstandings, and to reinforce the application of new skills and knowledge. To prepare the VET trainers to develop effective follow-up procedures that analyse the effective utilization of the training by individuals and provide action plans for correction and reinforcement of skills and knowledge application the following Specific Learning Objectives are set up:

LOb 1: Provide an overview of training follow-up.

LOb 2: Develop tools for training follow-up.

Learning objective 1 (LOb 1): Provide an overview of training follow-up

Training follow-up is the essential link to transform the knowledge and skills acquired during training into actual performance improvement. Before every training course, those implementing training must agree on a plan describing the follow-up of the trainees. Follow-up is essential to:

- Determine whether the trainee is correctly providing the service with his/her newly acquired skills and knowledge;
- Help the trainee solve problems and clarify misunderstandings that might have developed since the training;
- Obtain feedback from the trainee that might improve future trainings;
- Ensure that the work environment supports the use of the trainee's new skills. This includes making sure that equipment is in place, that educational standards support the newly acquired VET skills, and that management and systems (especially financial) support future VET trainer development.

Learning objective 2 (LOb 2): Develop tools for training follow-up.

Trainers need to develop tools for effective follow-up that adequately review all of the content of what is taught in the course. Thus, the follow-up materials should be developed in conjunction with the course content. Several types of tools exist.

Tools for Reviewing Service Provision

These tools represent: i) review log books that assess the type and mix of persons the trainee is seeing or ii) checklist with the skills learned during the training program, written in the number of times the trainee has practiced each skill following the training course.

Tools for Performance Evaluation

Using the same checklist of skills, observation is made on frequency of using the acquired during the training programme skills.

Tools for Reviewing Work Environment

A checklist is developed to review the work environment. This includes making sure that equipment is in place, that educational standards support the newly acquired skills, and that management and systems (especially financial) support the VET trainer use of new skills.

Tools for Obtain feedback

A questionnaire is developed to obtain feedback from the trainee about what might be done to improve future training. Moreover, an open-ended interview could be hold with the trainee to discuss what parts of the training worked well and what could be improved.

Tools for Problem Solving

A tool is developed to note areas where the trainee has performed well and areas where improvement is needed. Action plan is elaborated to address any of the areas needing improvement.